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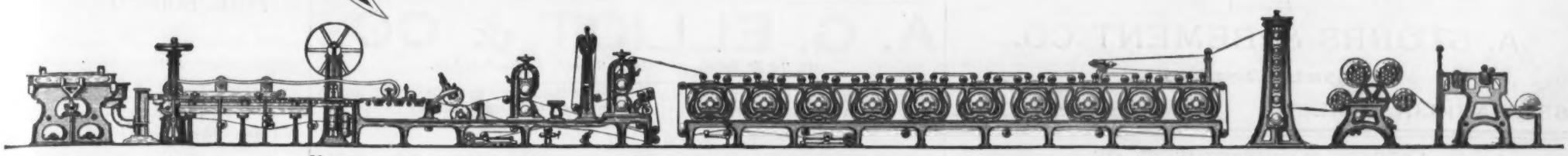


"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XXI.—NO. 29. NEW YORK, JULY 16, 1892. WHOLE NUMBER 950.

Trade Topics.

Trials and Triumphs of a Millwright.

Eighteenth Paper.

[WRITTEN FOR THE JOURNAL.]

By James F. Hobart.

A mill without a safe place in which to keep the dandy rolls may be considered as pretty hard up. A cupboard should be provided and the rolls stood on end therein, and the door furnished with a spring so that there will be no danger of its being left open for anything to possibly fall against the rolls.

Tramp had a little experience in this line one day. The rolls stood in one corner of the machine room and were protected only by a piece of felt hung up before them. A machinist was at work about 20 feet away, and in cutting off some nuts which had become so rusted on that they could not be removed one of them flew into the "dandy corner" and made a dent an inch long in one of the rolls. It happened to be a laid roll, and two of the radial supports which carried the wire covering were badly bent, one of them being broken.

It was necessary that this particular roll should be used that day, and as there was no time to send it away to be repaired Tramp undertook to do the job himself. The "laid" covering was first unwound and removed from the roll a distance of about 3 inches back of the dent on each side of it. The radial brass strips which supported the covering were so badly dented that he decided that they could not be restored to their proper shape, so with a three cornered file he cut them off on each side of the damaged place, then filed the ends to an angle of 60° and fitted in some new pieces, the ends of which were beveled to fit.

The pieces were soldered in place by a specially prepared blowpipe, which he subsequently found so handy in his work that it will be described here. An ordinary Bunsen burner formed the basis of the concern, and this instrument is, as most mechanics are aware, a brass tube through which ordinary illuminating gas is passed, while air is drawn in by the suction formed by the passage of the jet of gas through the tube by a kind of injector-like action. Several slots are made in the sides of the tube through which the air enters, and the area of these openings is governed by a second tube which fits snugly outside of the first tube, and is also provided with slots exactly like and matching those in the inner tube.

It is now evident that when the outer tube is turned so that the openings in both tubes exactly coincide the full extent of opening will be presented for the air to enter, but when the tube is turned so that the openings entirely mismate the openings will be entirely closed and no air will be admitted. By adjusting the outer tube any desired amount of air within limit of capacity of opening in the tubes may be admitted for the purpose of controlling the combustion of the gas within the tube.

When the air supply is properly adjusted a very powerful blaze will be obtained at the top of the tube, but Tramp found that he could not solder the roll with it, because he could not get the head where he wanted it. It was necessary that the joints to be soldered should be nearly level, so that the solder would flow where it was needed, and not run off the joint. From the construction of the lamp the flame will insist upon rising almost vertically into the air, consequently it was not possible to make a vertical flame pass along a horizontal piece of brass.

To get over this difficulty he had resort to the blowpipe. This and the "mouth bellows" business not proving very pleasant he hit upon the expedient of connecting the blowpipe to the air pipe which supplied the blacksmith's forge. This proved a success, and all of the joints but one had been soldered, when he happened to think that if a little more gas could be burned at the very tip end of the flame the heat might possibly be increased. This was found to be the case by connecting the blow tube to the gas supply, instead of to the air pressure.

After the radial supports were soldered the wire had to be laid back, and this he found to be more of a job than he had bargained for. The confounded stuff would persist in kinking and stay kinked in spite of all straightening until he hit upon the idea of snubbing the wire over a small roll about one-half inch in diameter, before attempting to wind the dandy again. With the Bunsen blowpipe it was very easy to fasten the wire in place again without the least trouble from getting solder stuck on the wire where it was not wanted

When Tramp first went to the mill he found a good deal of trouble in making the oiler take good care of the bearings under the mill. One shaft in particular gave a good deal of trouble. It ran over the drainers, and for the protection of the latter the shaft was boxed up pretty tight with only a few handholes for the oiler to reach through. Evidently it had been the policy of the oiler to put on all the grease he could when he went to this shaft, and then not go there again until it squeaked, or until a hot box was reported. In this way he got out of a nasty job pretty easily.

To cure this trouble Tramp established a pipe line from a tank in the upper part of the mill, and put a stop valve at each bearing so that he could regulate the flow of oil as desired. It proved to be a nuisance to carry all the oil to the top of the mill, and the device also gave trouble by the collection of sediment in the bottom of the tank, and in the pipes leading from it. There was also something lacking in the amount of head or pressure got on the oil in the pipes, so he determined to kill a whole lot of birds with one stone and put the tank in the cellar of the mill low enough so that a barrel of oil could be run by gravity right into the tank.

Furthermore, the pipe line was connected into the top instead of, as formerly, into the bottom of the tank and a pipe was carried from the bottom of the tank to the roof of the mill, where it was connected into the tank which supplied the sprinkler system. Thus much more head was acquired, the water being heavier than the oil, and, the pipes all taking oil from the top, there was little chance of dirt getting into them and subsequently clogging up the valves at the bearings. The dirt would all settle down at the bottom of the tank and could be easily blown out when it came time to clean out and refill the oil tank.

Tramp soon found that it took much less oil to properly lubricate the bearings after the continuous oiling method was put into use. He also found that there was not so much oil wasted, and the collection of grease on top of the drainers was greatly reduced. There is always a good deal of oil around a mill which may be saved if a little care is taken to collect the contents of all of the drip cups, and to maintain such cups under all the bearings. Such oil is not fit for use until it has been filtered, and he arranged another piece of old cast iron pipe to act as a filter, and then connected it with the reservoir of his pipe line.

The piece of filter pipe was about 3 feet long and 10 inches in diameter. Some small lugs were bolted inside and a wire screen put in, then a layer of excelsior 5 inches thick and another wire screen. These were put in the middle of the pipe lengthwise, then the concern was stood on end and the top connected with the oil reservoir. An old oil pump from the steam pipe of a defunct engine was attached to the bottom of the filter tank, and a quantity of oil was pumped in and allowed to filter through the excelsior and the water, then to pass into the main reservoir. The device worked pretty well, and it was found that the only thing needed further was a back action steam attachment for cleaning out the excelsior filter.

Paper Feeding Apparatus.

A new machine for the manufacture of paper boxes comprises a device for feeding the blanks, an apparatus to print such blanks, and a box forming apparatus which makes the blanks into boxes and is provided with an apparatus to form and insert a bail into the boxes as they are made.

The pile of blanks is placed on top of an elevator operated by mechanism which will raise the pile as required to keep the top blank in reach of the picker. This picker is designed to raise the top blank and place it upon a carrier so operated by mechanism that the instant the blank is placed upon it it travels to a point where printing mechanism is placed and which is timed to print and instantly release the blank, so that it may be conveyed by the carrier to a point where a plunger is arranged to instantly come down upon the blank and force it through folding cams into a position where mechanism is located to form and clamp a wire bail onto the box or pail, which at this period is complete, and is then nested with preceding pails and forced into the discharge spout.

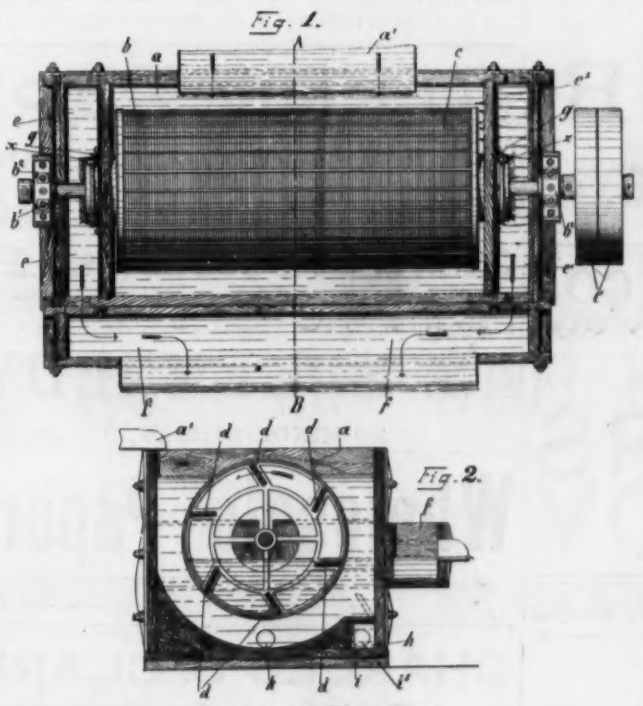
Adhesive.

A liquid glue, size, cement or paste is made from the waste liquor of bisulphite fibre driven off during the process of manufacturing paper stock by the bisulphite of lime process, which is evaporated until it has the consistency of syrup, and to which is added an alkali, caustic alkali, alkaline earth, equivalent chemical salts of these, or hydrate of ammonia.

The hydrate of ammonia is preferably employed according to the following formula: To 100 gallons of liquor of bisulphite fibre or wood pulp evaporated to a bulk of 35 gallons add 60 pounds of hydrate of ammonia. The mixture is then heated until an excess of ammonia is driven off and reaction is neutral. The addition of an alkali, as described, increases the binding or adhesive properties of the composition.

Strainer for Chemical Fibre.

The apparatus herewith illustrated is a new strainer for wood fibre, and its object is to remove all impurities from the fibre and thus sort out the finest part, which may then be employed for manufacturing all the superior sorts of paper up to the very finest qualities, while the coarser pulp, with the impurities contained therein, may be employed either in the same state in which it is separated or after again having been sorted for making packing paper and inferior papers generally. The apparatus consists mainly of a rotating cylinder provided with fine slots along its entire surface and having interior wings, such cylinder being caused to revolve in a vat or trough containing the unsorted pulp mixed with a large quantity of water. The trough is provided with suitable inlets for the pulp and water, which are caused to pass through the slotted cylinder, by which means all the coarser parts and impurities are separated out, as the slots in the cylinder are not wide enough to allow them to pass through.



Strainer for Wood Fibre.

Figure 1 is a plan; Fig. 2 a section on line A B in Fig. 1 of the apparatus.

The fibre mixed with a large quantity of water is passed into the trough *a* through the inlet *a'*. In this trough *a* is mounted the cylinder or drum *b*, which is perforated throughout with slots or fine slits, *c*, this cylinder being mounted on the horizontal shaft *b'*, running in the bearings *b² b³*, arranged at each end of the trough. Circular outlets at each end of the cylinder concentric with the shaft open into the channels *e e'*, which join to form one common channel, *f*, in front of the apparatus.

In order to prevent communication between the chamber or trough *a* and the outlet channels *e e' f*, the drum ends are mounted in the stuffing boxes and glands *g g*, so that the drum perforations form the only communications between the chamber *a* and the outlets. The drum *b* is further provided with interior longitudinal blades, *d d*. These blades run the whole length of the drum and are made to slant inward at an angle, preferably of about 45°, to a tangent passing through their point of juncture with the inner periphery of the drum. At the bottom of the trough *a* a channel or gutter, *h*, is arranged, having a hinged cover, *i*.

When the apparatus is at work this cover is open and all the coarser particles of pulp, as also the impurities which are unable to pass the perforations of the drum, sink to the bottom of the trough and by the motion of the drum will be carried into the gutter *h*. By closing the cover *i* and removing the plug *i'* the gutter *h* can be emptied without interrupting the working of the machine. The trough is also provided with the outlet *k*, by means of which it can be cleaned out.

The action of the device is as follows: The fibre suspended in water is filled into the chamber or trough *a*, so as to keep the liquid level up to about the height shown in Fig. 2. The drum is set in quick rotation by means of suitable connections and sheave pulleys, C C. The wings or fans *d d* suck the water and pulp through the slotted drum *b*, which, however, only admits the finest particles of cellulose, keeping out all coarser particles and impurities. The wings on the interior of the cylinder have the purpose of preventing the fibre from depositing at the bottom, and, furthermore, of keeping up a sharp circulation of the liquid toward the centre of the drum, *i. e.*, toward the outlets, thus preventing the finer particles which have entered the drum from eventually passing out again at the bottom. As the outlets of the drum are considerably larger than the inlets (slots *c*) to the same, the liquid level in the trough *a* will be always higher than that in the drum, so that the possibility of particles escaping which have once entered the drum through the slots is excluded, the only exit being at *x x*.

Severing Sheets from Webs of Paper.

An improved machine for severing sheets of paper from a continuous web or roll thereof is intended to provide improved mechanism which can be adjusted to cut sheets of paper of any desired length from the web, and incidental to this object to provide means for perforating the paper after its passage through the feed rolls, to provide devices for breaking the sheets from the web on the line of perforation thereof and removing them from the carrier tapes, and to adjustably mount the perforating mechanism in relation to the breaking devices, that when the length of the sheet has been altered the parts can be readily shifted, so as to bring the edges of the new length sheets up to the proper point for action of the breaker, all of which objects are attained by mechanism, which consists, essentially, in devices for regulating the speed of the paper feed rolls, adjustable perforating blades mounted on removable shafts whose speed can be varied according to the speed of the paper rolls, and in a series of carrier tapes and a gripping cylinder whereby the perforated sheets of the web are broken off and in certain other novel details of construction and arrangement.

If it is desired to cut sheets of about 30 inches length the periphery of the travel cylinder and the tapes travel faster than the web, and for each revolution of the cylinder the paper rolls feed out 30 inches of the web. The shafts are so geared up to the roll shafts that they make one revolution for each revolution of the cylinder and for each 30 inches of web fed out by the paper rolls, so that at regular intervals the web is perforated. These shafts are so speeded that the perforating blades travel in their revolution by the shafts at the same speed as the paper passing between them—that is, the circle described by the edge of the perforating blade is 30 inches in circumference and passed through by the blade at the same speed that the paper travels, this being easily effected by interchangeable gears on the shafts.

When it is desired to cut different lengths of paper it is only necessary to so adjust the speed of the paper feed rolls that only the desired length of web will be paid out and perforated at each revolution of the cylinder. This of course will naturally throw the point of separation of the web closer to the cylinder for shorter sheets or farther therefrom for longer sheets, and it is necessary to bring the edge of the new length sheets to the point of engagement with the gripper cylinders at each revolution. It is first necessary to change the speed of the paper feed rolls and perforating blade, so that only the requisite amount of paper web will be fed out and perforated, and to change the belt the gear is removed and another gear substituted which will impart the desired length of paper.

To change the perforating mechanism the gears are removed from the shafts and others are substituted therefor, which will cause one revolution of the shafts during the paying out of the requisite length of paper web. By means of the adjustable gears the new gearing is readily intermeshed. This provides for the regular feeding of the web, and the only other adjustment is to bring the edge of the new sheets into position for engagement by the grippers. By having a number of interchangeable gears of varying sizes for changing the speed of the feed rollers and perforating blades, the machine can be very readily adjusted to sever the web into various lengths, as desired.

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Correspondence.

Holyoke Notes.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., July 13, 1892.

The return of hot weather has diverted the thoughts of many manufacturers from business to the seaside and other resorts, and quite a number are absent from their usual haunts this week. Business seems to be jogging along in much the usual way at this season of the year, and there is very little that is new or interesting. The movement of finished goods is full as active as could be expected, and prices hold their own well. The orders are not large, but in the aggregate are up to the usual standard of the heated term. The stock market is exceedingly quiet and presents no marked features, dullness excepted.

The annual meeting of the American Paper Manufacturers' Association at Saratoga the latter part of this month is being looked forward to by many of our manufacturers and their friends with pleasant anticipations, and it is likely that the delegation will be as large as usual. The idea of holding this meeting in Chicago next year meets pretty general approval in this section, as many of our manufacturers will wish to examine the exhibit of paper which is to be made at the world's fair and to look over the "Windy City" and its surroundings.

A bad accident occurred at the Whiting street building early this week, by which John Hannon lost his life. The American Pad and Paper Company has been trying to acquire more room for storage and general purposes and to accomplish this it was necessary to remove some walls between some of the rooms. Hannon, who is employed by Contractor Cummings, was at work on this job, when without warning the brick work suddenly gave way and Hannon was buried under a quantity of brick, mortar and débris. He was removed as soon as possible, but the unfortunate man must have been killed instantly. The chest was crushed, both legs were broken and the spine was injured. Hannon was fifty-five years old and unmarried. He was a native of Ireland and was formerly in business for himself. It is said that he had a premonition of impending danger and had been gloomy for a number of days prior to the accident.

The Newton Paper Company has just made its annual corporation return and these are the figures: Fixed capital, $72,000; capital paid in, $72,000. Assets—Land and water power, $20,000; buildings, $36,000; machinery, $35,000; cash and debts receivable, $27,143; manufactures and merchandise, $12,800; total, $130,943. Liabilities—Capital stock, $72,000; debts, $9,075; profit and loss, $34,847; reserve for depreciation, $15,000; total, $139,943.

Work is being pushed quite rapidly on the site of the new Riverside Paper Mill. The head gates are nearly in and the extension of the canal wall is well under way. The excavation for the foundations of the main mill is about finished, and the walls will soon begin to rise. The New York, Hartford and New Haven Railroad Company has put in a spur track to increase the shipping facilities for the coming mill.

Contractor Casper Ranger has had a force of men at work at Collins Depot, making repairs and improvements on the mill of the Collins Manufacturing Company. He is also pushing the work on the addition to the Whiting Paper Company's mill No. 2.

The Crocker Manufacturing Company has just occupied its new machine room recently finished. It will accommodate one machine, and is a great improvement over the old building.

The Holyoke Water Power Company has just made this report of its financial condition to the State authorities: Fixed capital, $600,000; capital paid in, $600,000. Assets—Land and water power, $351,595; buildings, $787,877; cash and debts receivable, $737,868; manufactures and merchandise, $20,024; total, $1,888,366. Liabilities—Capital stock, $600,000; debts, $650; profit and loss, $537,715; reserved for dam and contingency, $350,000; reserved for special dam and renewal fund, $400,000; total, $1,888,366.

Contractor F. A. Rivers has finished his part of the work on the large mill of the Mittineaque Paper Company, and he turned the building over to the company ahead of time.

John E. Clark's fine pacer Linden is winning laurels for itself and shekels for its master on many tracks, and the animal bids fair to have a national reputation. Mr. Clark has owned a number of good horses, but he has never had a flyer that could compare with Linden.

The New England Card and Paper Company, of Springfield, began business this week in its new factory and is in better shape than ever. H.

Boston Notes.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 Federal Street,
BOSTON, July 14, 1892.

Weather conditions do not justify business activity this week.

The days are scorchingly hot, and the desire to escape the excessive heat prevents frantic rushing after trade.

The prevailing dullness in paper trade circles is not therefore a cause of serious complaint.

The paper stock market is unchanged from conditions heretofore reported, and while coming events sometimes cast their shadows before, not a shadow is now discernible from which to judge of future developments. The present demand for paper stock seems to be a little spasmodic, and it frequently springs from unexpected quarters, while efforts directed in other channels meet with little encouragement. Every day, however, brings to light some little business from one source or another, so that the week's trade usually foots up a fair volume of business, even in the hot months.

Imports for the past week included 2,700 bales of rags, 439 bales, 137 coils of manillas, 1,255 bales of paper waste, 482 bales of flax waste, 1,595 bales of wood pulp, 40 bales and 727 bags of sizing.

Receipts of chemicals for the week were 359 casks of bleaching powders, 100 drums of caustic soda, 154 casks, 200 bags of soda ash, 86 casks of refined alkali, 280 barrels of soda crystals and 668 bags of crude sulphur.

The chemical market is very quiet and without change in quotations.

Among recent trade visitors were Hon. William Whiting, of Holyoke, Mass.; Roswell Fairfield, of Fairfield, Mass.; Thomas Mole, of Adams, Mass.; Geo. K. Russell, of Bellows Falls, Vt.; C. P. Hopkins, of Hinsdale, N. H.; A. G. Fountain, of Richmond, Va.; A. F. Colburn, of Bradford, Vt.; W. L. Bidwell, of Rainbow, Conn.; A. B. Trentman, of Hartford City, Ind.; David L. Luke, of Richmond, Va.; Charles T. Weeks, of Skaneateles, N. Y.; George Perkins, George Briggs and J. H. McCormack, of New York; C. R. Milliken, of Portland, Me.; Charles Mayo, of Lawrence, Mass., and Frank P. Carpenter, of Manchester, N. H.

That fire at Train, Smith & Co.'s Bristol, N. H., pulp mill didn't amount to much. The loss has already been adjusted, the insurance paid and the hole in the roof will be repaired.

Percy Herrick, who for several weeks has been confined to his home with slow fever, has recovered from his illness and is now able to be about town with the aid of a heavy cane.

B. F. French returned from Europe on the Pavonia on Sunday last, accompanied by Mrs. French.

J. B. Forsyth is located for the summer at the Nanapashement, Marblehead Neck; Wm. H. Claflin at the Lincoln House, W. R. Hallett at Clifton, all down by the sea on the Swampscott branch of the Eastern Railroad. When the 4 P. M. train leaves town without these manilla paper men there is disappointment at the other end, and some very tall stories of important business matters in town have to be framed by way of explanation.

The holding of the American Paper Manufacturers' Convention at Saratoga this year does not, it seems, meet with the general approval of the Western members of the association, and some have seen fit to exercise their individual right to "kick," and in "kicking" are inclined to direct their toes toward Secretary Barker, holding him responsible for their disappointment. This is certainly unjust to Mr. Barker, and if Mr. Barker could be prevailed upon to talk for publication the Western members would at once acknowledge that they have been a little unkind to their worthy secretary.

No one has taken greater interest in the success of the association than Mr. Barker, its secretary. As a member of the executive committee, Mr. Barker has offered many valuable suggestions, having for their object the advancement of the association on lines calculated to strengthen it and of special benefit to individual members. Mr. Barker has labored hard to interest the Western manufacturers, and he has been pleased at the cordial support so far received from the great manufacturing interests of the West; but he feels keenly disappointed at the dissatisfaction which some of the Western trade seem to feel over the selection of Saratoga as the place for the coming convention. While Secretary Barker is not individually responsible for this choice, as a member of the committee making the selection he must stand by the action of his official associates and continue to do his duty to the association. Now that the moral support of the West has been given to the association, and since a course has been outlined in which the wishes of the Western members have been considered, it behooves Western members to be present at the coming convention, to take part in shaping the future action of the organization. In the efforts made to make the association a national body, in interest as well as name, the East is inclined to meet the West half way and is anxious that the West shall be sufficiently represented in numbers at the convention to give voice to its desires and to bear a part of the responsibilities of legislative action. New life is being given to the association, new work for its accomplishment is to be presented, and the West should be on hand to help shape its course.

Members who expect to take the train from Boston to Saratoga should notify Secretary Barker as early as possible, as well as others of the city trade who expect to attend the convention, so that proper arrangements may be made for their accommodation.

It is proposed to secure from the Fitchburg Railroad a special car for the use of those starting from Boston, this matter being in the hands of George W. Russell, of the Russell Paper Company, to arrange, and Mr. Russell is adding to his list the names of parties who signify their intention

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of going to the convention and want special car accommodation. The trade will therefore see the necessity of giving early notification.

Some weeks ago I had occasion to note the improvements which M. A. Swift & Son had made in their Exchange street store, and while the changes then made gave better office facilities and added not a little to the convenience of business the firm still found itself very much crowded for room. So long had M. A. Swift & Son been located at No. 33 Exchange street that to move away seemed like deserting home and friends, and yet move the firm must if its growing trade was to be properly handled. Where to move to was not so easily answered until Mr. Swift secured a lease of the store No. 15 Exchange street, only a few doors removed from the firm's old-time location. Into the new quarters M. A. Swift & Son are now moving, the spacious street floor of 100 feet deep and large basement for storage giving the room so long needed for the firm's business. The firm's factory, where toilet papers are put up and packed, toilet papers being the firm's leading specialty, will still remain at Fort Hill square. M. A. Swift & Son are to be congratulated on their change of quarters, for it is good evidence of the firm's increasing business.

DELESDERNIER.

Bamboo as a Substitute for Wood.*

The discussion of waning wood supplies, which has formed a part of the stock in trade of forestry reformers, naturally leads to a search for substitutes which will either permit reduced consumption or more rapidly replace exhausted supplies. It was to meet this phase of the discussion on forestry matters that the division published Bulletin 4, on the substitution of metal for wood in railroad ties, and for the same reason the following brief discussion on the bamboo and similar materials, as possible substitutes for wood, is here given at the special request of the Assistant Secretary of this Department. In connection therewith will be found a letter of the United States consul to Sicily, Charles Heath, on the advisability of introducing into the United States the well-known bamboo, *Arundo donax* L., a native of South America, Southern Europe, Egypt and the East, doubtless one of the more important of the species for economic purposes.

The following notes are taken from his letter :

Thoroughly naturalized in Sicily, where it is not affected by slight frost, and recommended for introduction in the United States as far north as New York, it will doubtless prove hardy throughout California and the Southern States.

Sicilian farmers consider this cane the best paying crop, and grow it abundantly on otherwise worthless wet land, utilizing borders of fields, brooks, swamp holes, &c.

Arundo donax is a perennial plant, dying to the ground each year and producing new canes in the spring, propagated entirely from root cuttings—a rooting joint or eyes.

Merchantable canes are produced in one year and a plantation yields for a dozen years, requiring no cultivation after planting. A single plant gives five or six canes 30 feet long, the stock becoming stouter each year. The dried canes have a large sale, being very light, stiff, durable and furnishing material for fencing, roofing, canes, fish poles, hop, grape and bean poles; split, they are used for lath, woven hampers, baskets, &c.

The tribe Bambusæ (bamboos) belongs to the true grass family, Gramineæ, and comprises about twenty genera with nearly 200 species, of which the genus Bambusa may be considered the type. The bamboos are mostly confined to warmer regions, sometimes growing at elevations of 10,000 to 15,000 feet.

About fifteen genera, of which Bambusa, Arundinaria, Arundo, Dendrocalamus and Guadua are the most important, constitute the more or less arborescent and tall cane-like forms of the tribe. Of the genus Bambusa, perhaps the most important economically, there are about forty-six species, mostly arborescent. Thirty of these are Old World forms, fifteen South American and one species occurs in Africa. A single species, *Bambusa vulgaris*, is cosmopolitan and widely distributed by cultivation.

The genus Arundinaria, economically important, contains about twenty species, two of which (*A. macrosperma* and *A. tecta*) are the only canes growing native in North America, occurring in the Southern States and Northern Mexico, the *A. macrosperma* forming the canebrakes of Florida. The remaining species range through South America and Asia (Japan and Himalayas).

The allied genus Arundo has about seven species, tall canes, one of which, *A. donax*, is highly esteemed as a useful plant. It belongs naturally to South America, Southern Europe, Egypt, and the East, but by cultivation has become widely distributed.

The bamboos differ from the common herbaceous grasses, with which they are classed in general, only in having tall or arborescent, stiff, woody, siliceous stems, hollow between the many joints. In size the bamboos range from 10 to 150 feet in height and from 1 inch to 2 feet in diameter.

Economically the bamboos supply chiefly construction, textile and food material. The seed of many species resembles rice, especially when cooked, having about the same market value, a few species having berry-like fruit. The uses to which bamboo stems, leaves, &c., are put are almost innumerable. Principal among them, in warmer climates, are those for the building of houses, bridges and fences; also for the making of masts, rafts, water pipes, ship rigging, carts, furniture, boxes, baskets, hampers, mats, cordage, paper, &c. The young tender shoots are often cut for fodder, and the shoots of one or two Japanese species are cooked and eaten as asparagus.

In the United States, so far as known, the bamboos are as yet only planted for ornament. Nearly all the arborescent kinds are more or less known in cultivation; and of these there are about twenty well-known species grown for ornament and as useful plants.

Of the sixty indigenous species of the Chinese empire, only six or seven are cultivated for economic purposes. *Bambusa matake* and *B. arundinacea* are most esteemed in Japan.

Besides the two native canes of the Southern States there are at least ten important exotic bamboos from China, Japan and the Himalayas which may reasonably be expected to thrive in the milder parts of the United States; and two of these (*Bambusa matake* and *Arundinaria Japonica*) have been found to be hardy even in New England climate.

According to H. C. Ford, of Santa Barbara, to whom credit is due for some of the information contained in this paper, a number of successful bamboo plantations have already been established in Southern California; that of Gen. R. W. Kirkham, of Oakland, of plants originally introduced from China, is twenty-four years old, making a growth of as much as 35 feet in one season. Mr. H. H. Berger, of San Francisco, imported a number of choice kinds from Japan, cuttings or sprouts from which were subsequently distributed through the State University experimental garden.

The Indian bamboo, *Bambusa arundinacea*, attaining a height of 50 feet, is also successfully grown in sheltered positions in the State; and it is attested by one California grower to be capable of enduring six degrees of frost, the roots resisting a zero temperature. At the semi-tropical exhibition at Ocala, Fla., a fine collection of bamboo stems large enough for fence rails was exhibited from Lee County, Fla.

The bamboos have a wide distribution climatically and range in altitude from the sea level to 10,000 or 15,000 feet (Himalayas). They appear to flourish best in warm, moist climates, although in many cases, especially in regions subject to drought, they seek shaded ravines and valleys with a cool atmosphere. For best development they require a deep, moist, loose, rich soil. Protection against rapid evaporation of soil moisture in sandy soils is highly important in the early growth of a plantation. A wet soil, however, is not essential.

Doubtless few extra-tropical plants indicate, in their ability to endure the rigors of their native climates, greater chance of successful introduction into this country than the bamboos. A number of the Asiatic species are said to occur naturally as far north as parallel 40, and at Yokohama and Yeddo, where a foot of snow and 2 inches of ice are not uncommon. At Hong Kong species grow high up in the hill country, though mostly in moist, cool valleys and ravines, which is indication that in general these plants flourish best in regions with abundant rainfall—at least with periodical rainfall. These conditions may doubtless be supplied, as is already done in Southern California, by proper irrigation, particularly in the drier southwest, where these plants must be regarded as a desirable accession.

The bamboos are gregarious in habit, numerous stems arising in dense, impenetrable masses, and as the shoots and mature canes are cut down from year to year new shoots constantly spring up. The height and diameter growth of the arborescent kinds is often remarkably rapid and large. With an Indian species (*Dendrocalamus giganteus*) the growth is phenomenal, being known to reach 40 feet in as many days. A record is given for even 2 to 2½ feet in a day. General Kirkham has a record of 8 inches per day attained in his California plantation. According to the species, the mature stems are 10 to 150 feet in height.

The myriad uses found for bamboos in China, Japan and other regions require a greater supply than can be derived from natural propagation. Supplies of bamboo seed for planting are difficult to obtain, as the plants seed rarely, sometimes not oftener than every twenty-five or even sixty years, and a few of the most useful kinds grown in Japan are said never to seed. The seeds, moreover, are exceedingly difficult to germinate; hence plants are propagated almost entirely from root cuttings, eyes and offsets.

The year before plants are needed for transplanting old-established plants, which should not be younger than four years, are thus treated: The main stem is cut back (to about 6 to 8 feet in height); also the side shoots, if any, are moderately trimmed. The shallow horizontal roots are cut off from the mother plant at a short distance from the stem. A narrow trench is then cut on each side of the plant down to the root level and filled with a rich phosphate compost, and the plant is left till the following spring, when, with sufficient newly formed roots, it may be successfully transplanted to a permanent site—best in rows 12 feet apart and the plants 2 feet apart in the row. Plants thus set out should be 2 to 4 inches deeper in the ground than originally grown. Care also should be taken to brace the stems newly set out to prevent them from being uprooted by wind.

The roots, severed from the mother plant, are left in the ground undisturbed, as they soon throw up new shoots, which in about three years become sufficiently established to be treated for transplanting, as in the case of the parent plants.

But little care is given to a bamboo plantation once established beyond general cultivation during the first two or three years.

The experience of Japanese bamboo growers is that mature stems are best harvested in September, in order to avoid the destructive ravages of a beetle which soon attacks the canes cut at other seasons of the year.

* Annual report of the chief of the Division of Forestry.

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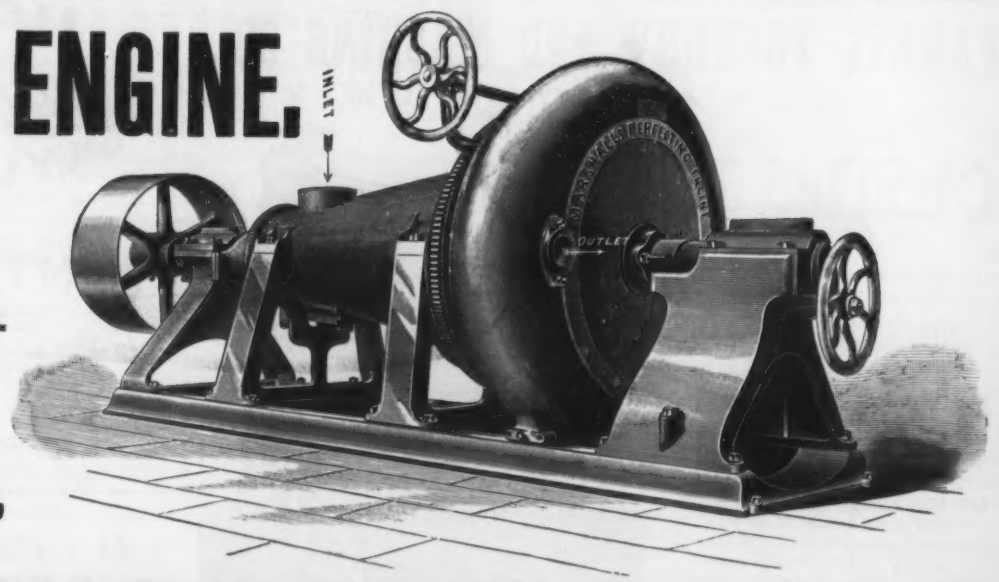

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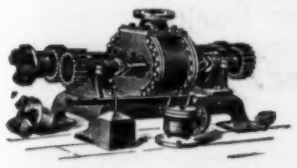

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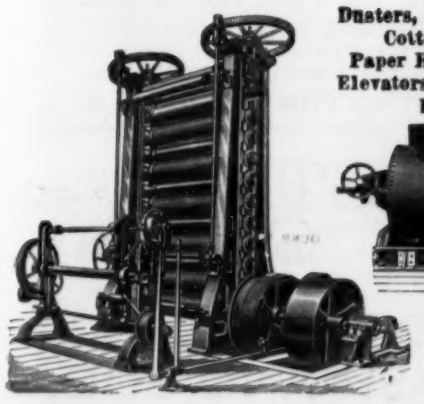

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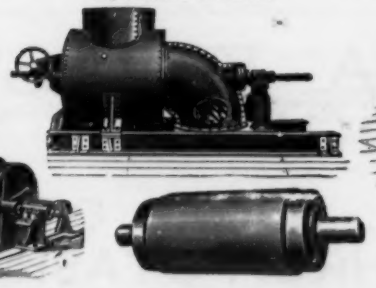

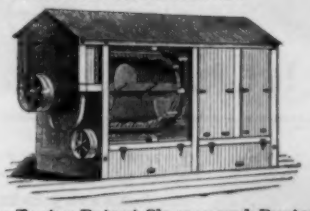

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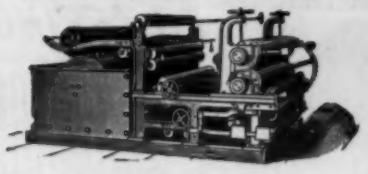

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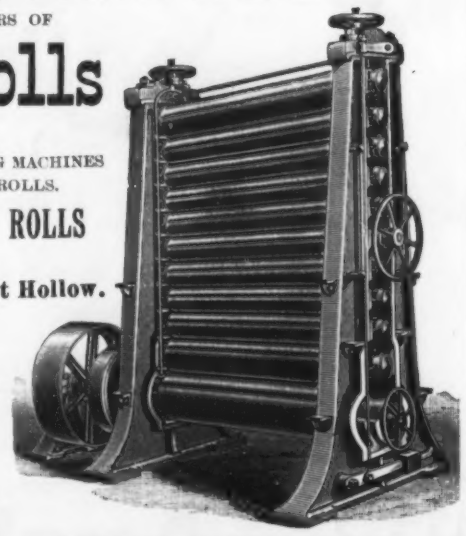

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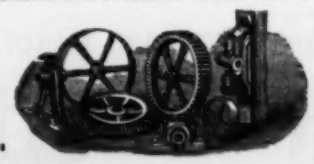

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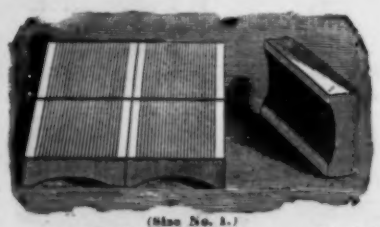

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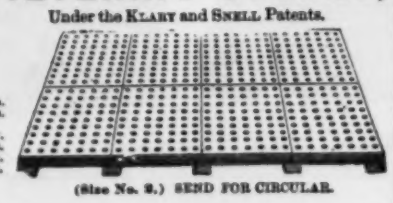

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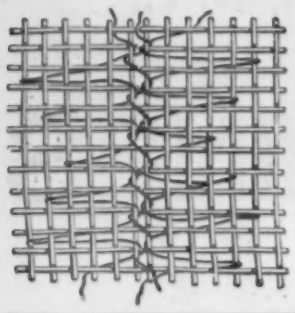

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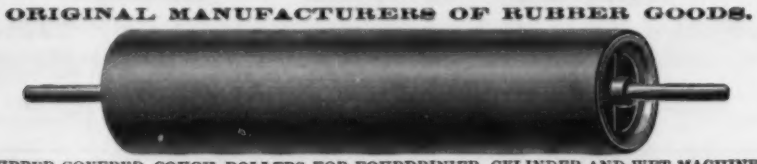

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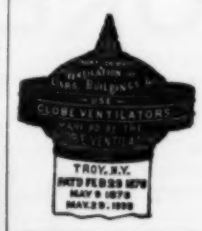

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Water Management the Problem of the Future.*

Before even attempting the control of precipitation, our studies, in the opinion of the writer, should be directed to secure better management of the water supplies as they are precipitated and become available by natural causes. How poorly we understand the use of these supplies is evidenced yearly by destructive freshets and floods, with the accompanying washing of soil, followed by droughts, low waters and deterioration of agricultural lands.

It may be thought heterodox, but it is nevertheless true that the manner in which most of the water of the atmosphere becomes available for human use (namely, in the form of rain) is by no means the most satisfactory, not only on account of the irregularity in time and quantity, but also on account of its detrimental mechanical action in falling, for in the fall it compacts the ground, impeding percolation. A large amount of what would be carried off by underground drainage is thus changed into surface drainage waters. At the same time, by this compacting of the soil, capillary action is increased and evaporation thereby accelerated. These surface waters also loosen rocks and soil, carrying these in their descent into the river courses and valleys, thus increasing dangers of high floods and destroying favorable cultural conditions.

Here it is that water management and, in connection with it or as a part of it, forest management should be studied; for without forest management no rational water management is possible. The forest floor reduces or prevents the injurious mechanical action of the rain, and acts as a regulator of waterflow. Hitherto water management in rainy districts has mainly concerned itself with getting rid of the water as fast as possible, instead of making it do service during its temporary availability by means of proper soil management, horizontal ditches and reservoirs, drainage and irrigation systems combined.

It seems to have been entirely overlooked that irrigation which has been considered only for arid and sub-arid regions, is to be applied for plant production in well watered regions with equal benefit and profit, if combined with proper drainage systems and forest management. To pave the way for a better utilization of water supplies in the Eastern States seems as much a proper function for the Department of Agriculture as the development of irrigation systems in the Western States; and a comprehensive collection of water statistics and forestry statistics with reference to their mutual relation seems to be a desirable task for the co-operation of various branches of this department and the State agricultural stations.

* Annual report of the chief of the Division of Forestry.

The Tissue Paper Interest.

A report of an alleged interview with Col. G. W. Thompson, president of the Diamond Mills Paper Company, which recently appeared in the New York *Times* was so framed as to convey the idea that the manufacturers of letter copying tissue papers were trying to form a combination so as to hold prices and offset the competition engendered by the tariff.

To anyone familiar with the situation this would seem to be ridiculous, and it is not surprising that Colonel Thompson should refuse to confirm the statements made by the *Times*.

In an interview held subsequently with a *Tribune* reporter Colonel Thompson is reported to have said:

"As to the statement that tissue paper manufacturers were endeavoring to form an association to control and regulate the trade, that is incorrect, for the meetings in question were held by makers of manilla tissue, which is used for wrapping fruit, and when paraffined for packing butter, &c. This kind of paper is not imported into the United States in any considerable quantity, and never was, for the reason that there is only a little of it made on the other side. As to the tissue paper used for copying books and grass bleached or silver paper, that is another thing. At the time this tariff went into effect the importations of these higher grades of tissue were valued at over $1,500,000 annually.

"Under the stimulus of protection American mills began to make these papers and some eight or ten mills soon received this $1,500,000 which formerly went abroad, for prior to the time the McKinley tariff went into effect little if any was made in the United States. Foreign makers were charging $2 a ream for this silver paper, but when our mills began to make it they at once began pulling down the price and it dropped from $2 to $1.12 a ream, when we had to abandon our competition with the products of the ill paid labor of Europe. Our workmen could not live on the wages which the European manufacturer was paying to his men. Prior to 1883 the duty was 35 per cent. ad valorem, when it was for some reason lowered to 25 per cent.

"The Tissue Manufacturers' Association believed that under an increased duty we could easily turn out as good paper as any mill in Europe, and we succeeded in inducing the House Committee on Ways and Means to concede a duty which amounted to about twice the former duty of 25 per cent. We argued that there would be only a small increase in the cost of the paper, and as a matter of fact the price increased only about 10 per cent. Copying paper has been gradually falling in price, owing to the fact that it can be made cheaper in larger quantities and by the introduction of improved machinery. The price of silver paper has also been falling slightly for similar reasons, although little of it is now imported.

"It is not true that I ever said that Senator Aldrich opposed this article for the reason that he was an importer of paper. I certainly did not criticise Senator Aldrich or any other senator in any way for any course which seemed wise to them to pursue. I do not know whether Senator Aldrich opposed this article in the Senate or not, and to the best of my knowledge he is not an importer of paper. The free traders are trying to make out that there is a split in the unbroken ranks of the protectionists and stir up a public misunderstanding if possible. The Committee of Ways and Means saw at once that there must be a protective tariff on this paper if it was ever made in this country. The Senate for some reason struck out this article, but it was reinserted by the Conference Committee as originally reported.

"It is false and absolutely without foundation that I have opposed the McKinley tariff or said that any part of it should be repealed. The manufacturers are all satisfied with it and are opposed to its repeal. Consumers are also satisfied and would, I think, oppose any change. It is working as perfectly as the most sanguine ever expected it to. A repeal of the tariff would stop all the mills making this paper. At no time have I said anything about the tariff bill other than in praise of its wisdom and splendid workings. Everything which I have said has been twisted so that it would convey an erroneous impression. So you can see that I do not regard protection as a 'humbug' by any means. As a true American I am heartily and uncompromisingly opposed to British free trade; as a protectionist I do now, as I always have, most heartily favor and uphold the McKinley tariff law."

The Tin Mines of Dakota.

Lord Thurlow sailed for England on Wednesday on the City of New York. He recently returned from a visit to the tin mine properties in South Dakota, where the Harney Peak Consolidated Tin Mining and Milling Company, with a capital of $15,000,000, of which he is an officer, owns 1,100 claims.

"This country," said Lord Thurlow, "will not need to import any tin two years hence, for our mines will produce enough tin to last for centuries. The production will save £15,000,000 a year, which this country is paying for tin plate. This enormous sum will go into the hands of the people of this country.

"The company of which I am chairman and in which New York or American capitalists are equally interested, has already built two of the largest and most thoroughly equipped mills in the world. Each has a capacity to produce 500 tons of tin a day, and this will be increased to 3,000 tons daily should necessity demand it.

"Two or three other mills of similar proportions have been planned. We expect to begin to work the two mills already constructed by October 1 and to put tin on the market in commercial quantities. I have inspected tin mining properties in various countries, but I never yet saw such resources as I found in Dakota."

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; and Real, a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
A. G. Cheever & Co., Boston, Mass.	$3,000
Wesley M. Grant, Boston, Mass.	250
David Davidson, Worcester, Mass.	300

WESTERN STATES.

E. Y. Cammer, Lancaster, Cal. (B. S.)	1,100
Harris & Co., San Diego, Cal.	900
Despatch Publishing Company, Leadville, Col.	750
I. V. Park (*Times*), Joliet, Ill.	685
W. H. Conant (Quayle & Conant), Rock Island, Ill.	2,250
Geo. A. Severance, Port Huron, Mich.	250
A. W. Saxe, South Omaha, Neb.	4,729
Lewis Knerr, Dayton, Ohio (Mech. Lien)	1,005
C. B. Huffman, Ogden, Utah	595

LIENS DISCHARGED.

James C. Kidd, Stockton, Cal.	2,257

Obituary.

CYRUS W. FIELD.

The death of this distinguished American occurred on Tuesday morning, July 12, at his summer home, Ardsley Park, 2 miles from Dobbs Ferry, N. Y. He had been a sufferer for months, but his last hours were peaceful, after the acute delirium and fever which thirty hours before presaged the end. Few careers have been more active and fewer yet so strangely diversified as that which has just closed amid a whirlpool of business troubles and the wreck of a once happy family. Four children survive Mr. Field. They are Isabelle Judson, Edward Morse Field (the recent notorious bankrupt), Cyrus W. Field, Jr., and Alice Durand Field. His three scarcely less famous brothers, Hon. David Dudley Field, Judge Stephen J. Field, of the United States Supreme Court, and Rev. Henry M. Field, the evangelist, traveler and author, are yet living.

Cyrus West Field was born on November 30, 1819, at Stockbridge, Berkshire County, Mass., and educated in his native village.

CYRUS W. FIELD.

When only fifteen years of age he came to New York. He had learned something of bookkeeping at school. With a total capital of $25 loaned to him by his father, a clergyman whose income was disproportionate to the constant demands upon it, young Cyrus started out to win his way among men. Already his eldest brother, David Dudley Field, was established in the metropolis as a lawyer and was rapidly building up practice and reputation. He secured for Cyrus a clerkship in the dry goods store of Alexander T. Stewart, which (in 1834) was only the promise of its later celebrated dimensions. Under contract with Mr. Stewart young Field was to remain for three years at a salary of $50 the first year, $100 for the second and $200 for the third. While in this employ he missed no opportunities to learn what he could of the business of a merchant, and at the close of his engagement he determined to start in trade on his own account. By this time he had won the good will of his employer and associates, and upon his retirement he was presented by Mr. Stewart with a diamond pin and entertained by his fellow clerks at a supper, two honors of which he was exceedingly proud.

Not long after leaving Mr. Stewart's employ Cyrus W. Field became the traveling salesman for a paper manufacturer. He remained in this service for two years, when he engaged in business for himself with Elisha Root, under the firm name of Root & Co. This was in 1840, just before he reached his majority. The day following the twenty-first anniversary of his birth he was married to Mary Bryan Stone, of Guilford, Conn., who shared with him his domestic fortunes for almost fifty-one years. She was a very estimable woman. Her death in the autumn of 1891 greatly affected him.

Cyrus W. Field was in 1840 numbered among the paper manufacturers of Lee, Mass., a locality which at that time was said to have produced one-fifth of all the paper made in the United States. His mill was destroyed by fire on November 27 of that year, only a small portion of its machinery being saved. The loss amounted to $20,000, about three-quarters insured. No. 85 Maiden Lane was the site of the New York warehouse and office of Root & Co. in 1840–41. It was from there that the product of the paper mill at Lee had been forwarded direct to consumers. Not long after his wedding Mr. Field, returning to New York from a business jaunt, found that his partner had indulged in rash speculations and had bankrupted the firm. The crash carried with it all that Mr. Field had, but by this time he had firmly established himself in business confidence and he was able to make arrangements with his creditors by which he started out for himself. When he began his business career he announced his determination that he would make a fortune within twenty years. He started anew in 1841. On January 1, 1853, he retired from active business with what was then regarded as a large fortune, and he became the owner and occupant of the Gramercy Park house which was always afterward his city home. It was at that time, in his opinion, that he had all the money he wanted and that he could spend the rest of his life in seeking recreation. With this end in view he accompanied an old friend of his, Frederick E. Church, the artist, on a tour through South America. They expected to be gone two years, but returned in the latter part of 1853.

As a dealer in paper and paper stock the subsequent business ventures of Cyrus W. Field were a series of vicissitudes. He was granted an extension of payments in 1857, at the period when he had so much at stake in ocean telegraphy, a formidable enterprise which was successful in 1868 and the story of which, so often rehearsed in type, is not necessary to detail here. In 1859 the firm of Cyrus W. Field & Co., of New York, consisted of himself, —— Waterman, W. F. Conger and Edward Jones. Its different business localities within the two years from 1859 to 1861 were at No. 11 Cliff street, No. 57 Beekman street (where a disastrous fire occurred), and while those premises were being put into tenantable condition the firm occupied a building on John street near Cliff. Failing again in 1861, a compromise was effected by Mr. Field and his creditors for 25 cents on the dollar. The remainder of this indebtedness was afterward paid with accrued interest.

Mr. Field admitted having cleared $3,000,000 on the Atlantic cable enterprise. Popular estimate placed his profits much higher. He was content to rest for a time after this gigantic undertaking was under way, and in 1869, while still enjoying a vacation, he attended the opening of the Suez Canal as the representative of the Chamber of Commerce. In 1876 he was actively interested in elevated railroad projects, and became president of the New York Elevated Road. A year or two later he went around the world, returning home with a concession for a submarine cable between the Sandwich Islands and San Francisco.

The summer of 1879 brought Mr. Field again to public notice through the sale of large blocks of elevated stock by Samuel J. Tilden. Mr. Field was on the ocean when the stock was sold. Arriving in London he found that the price of the stock had broken from about 200 to 164. He charged Mr. Tilden with bad faith, claiming that he and Tilden had gone into the deal as partners. Mr. Tilden replied that Mr. Field's purpose in going to London was to sell out. In 1881 Mr. Field was known to be worth at least $6,000,000. He was squeezed out of two-thirds of this in 1887, in the elevated railroad deal of that year. His fortune still further shrank in succeeding years, and when the Field, Lindley & Wiechers crash came he raised $500,000 by mortgaging all his real estate and by putting up all the securities he possessed. This money he turned over to Edward M. Field. Of course it was only a drop in the bucket in meeting his son's debts. The 21 acres of land and the house in which he died are heavily encumbered, and he has only been living there, it is said, through the kindness of a wealthy man. Part of his once fine miscellaneous library was sold at auction early this summer.

During Mr. Field's activity in the stock market he bought the New York *Evening Express*. Afterward he bought the *Mail*. The two papers and their titles were merged under his ownership, which lasted until the present management took hold.

For many years Mr. Field was an avowed champion of life insurance. He put his opinions into practice, and long enjoyed the satisfaction of having himself heralded by insurance men as one of the best insured men in the country. It is believed that he carried policies for at least $300,000 in risks written by large companies. None of these policies was ever allowed to lapse.

Late on Thursday afternoon, the 14th instant, funeral services were held at Ardsley Hall Park. There was a large concourse of family friends and the more prominent neighbors. Bishop Henry C. Potter, of New York, officiated in the absence of Mr. Field's pastor, Rev. Arthur Brooks, who is on his way to Europe. Yesterday (Friday) morning a special train conveyed the body, with members of the family and newspaper correspondents, to Morrisania, Westchester County, where it was attached to an express on the New York, New Haven and Hartford Railroad, and from that point taken to Stockbridge, Mass. There were additional services at the grave.

JOHN WILKINSON.

John Wilkinson, a resident of East Farnham, P. Q., Canada, died at that place on Monday the 20th ult. He was the father of William W. and Thomas P. Wilkinson, of the firm of Wilkinson Brothers & Co., the well-known paper manufacturers and dealers, the former of whom is in charge of the paper mill of the firm situated at Birmingham, Conn., and the latter of whom is in charge of the store of the firm at 72 and 74 Duane street, New York, William H. Leach representing the "Co." He is also the father of J. C. Wilkinson, a younger brother of the Wilkinson Brothers, who is connected with the firm in New York.

Mr. Wilkinson had been a resident of East Farnham for the last fifty-five years, and was widely esteemed by a large circle of friends and acquaintances for his sterling qualities of head and heart, and was especially greatly respected and beloved by his sons composing the above named firm. He pursued the occupation of a farmer all his life, and was respected by all with whom he came in contact in the course of business. As a farmer his life was simple and quiet, and the Christian character which he bore and maintained throughout the whole course of his existence was always uppermost in his daily living and in his business transactions with his fellow men. His outdoor calling, his quiet life, his uprightness of character and Christian faith were undoubtedly the means which enabled him, together with a good natural constitution, to reach that great age at which he died, for when Mr. Wilkinson laid down life's battle he had passed by several months his eighty-sixth birthday.

JAMES REED.

James Reed, a veteran paper maker, died at Dalton, Mass., on July 8. He was born near Dundee, Scotland, in 1813. In his native country he made paper by hand. He came to America when eighteen years old. He lived in Dalton forty-two years. For eighteen years he was foreman of the mill at Collinsville. He was one of the founders of the Methodist Church at Lee. Mr. Reed was one of the oldest residents of Dalton, and was contemporaneous with the pioneer paper maker of New England.

Thomas Patten, vice-president of the Patten Paper Company, of Appleton, died suddenly of heart failure at Mammoth Hot Springs, Wy., last week. He and his wife and child were taking a Western pleasure trip. He was only twenty-nine years old.

Thomas J. Shoemaker, dealer in paper hangings, Philadelphia, Pa., is dead.

Chemical and Physical Properties of Rosin Oil.

Until recently it was generally believed that the use of rosin oil was almost entirely confined to the manufacture of printing inks and cart grease and the adulteration of other and more expensive oils. Although large quantities of it were manufactured, but little found its way into the retail market, at least under its own name.

There is now, however, some probability of an increased consumption taking place owing to the rediscovery of its properties as an insulator; and it will not therefore be out of place to say something concerning its nature and properties, if only to dispel the vague atmosphere with which the subject has been surrounded and to show how completely any dogmatic statements that have been made, or may be made, must be modified by a consideration of the quality of the oil referred to.

In the first place, rosin oil is so called because it is the heavier part of the products of the destructive distillation of rosin, which in its turn is the residue left by distilling crude turpentine, spirits of turpentine being the volatile portion. The ordinary vitreous body, varying in color from light yellow to almost black, known as rosin, consists of a mixture of abietic acid and abietic anhydride together with a small quantity of sylvic acid.

When distilled these bodies are broken up, yielding a mixture of hydrocarbons, accompanied by a larger or smaller proportion of unchanged rosin acids and anhydrides. The relative amount of these constituents is determined by the design of the stills and the manner in which the distillation is conducted. The more carefully prepared and refined the oil is, the lower is the proportion of rosin acids, and in the laboratory rosin oil may be obtained with but a few per cent. of substances other than hydrocarbons.

The specific gravity of rosin oil of commercial quality may vary from 0.98 to 1.10, while its power of rotating a beam of polarized light is similarly variable, being generally dextro-rotatory, but sometimes lævo-rotatory, or nearly absent. These facts are sufficient to indicate the variable character of commercial rosin oil, and the futility of discussing its electrical properties without defining the character of the sample used is tolerably apparent. In the various communications which have lately been made concerning rosin oil insulation, this necessity has not been sufficiently kept in sight.

The only satisfactory method for settling once for all the kind of oil best fitted for this purpose would be to examine the insulating capabilities of numerous samples, and simultaneously determine their composition by analysis. If this were done, and it were ultimately found that resin oil could be as advantageously used as some of its advocates appear to think, there would be afterward no difficulty in obtaining supplies of precisely the same quality as those which had been found efficient.

The maker would be given a definite standard to work to, and could, by the aid of his chemist, match that standard as nearly as would be necessary.

In dealing with rosin oil, one of the most noteworthy qualities that are apparent on inspection is its great viscidity. It is to this, and to its immiscibility with water, that its applicability for the purposes of insulation is chiefly due. It is therefore plain that in addition to a purely chemical examination, the determination of the important physical property of viscosity would have to be undertaken. Thanks to the advances that have been made in the methods of examining lubricating oils there is no difficulty in effecting this.

Besides determining the viscosity at ordinary temperatures it would be very desirable to do so at higher temperatures, as it by no means follows that oils of the same viscosity at any given temperature have the same coefficient of decrease as the temperature is raised. There is a further point which seems to have been also overlooked. Rosin oil when exposed to the air undergoes change. How noteworthy that change may be has been opportunely illustrated by some figures given in a paper by F. H. Leeds, which was recently read before the Society of Chemical Industry. The results of three of the samples examined are given below:

No. of Sample.	Original oil — Rosin acids.	Original oil — Hydrocarbons.	Oil after exposure to air. — Rosin acids.	Oil after exposure to air. — Hydrocarbons.
A	31 07	68.93	24.90	75.10
B	22.20	77.80	16.09	83 91
C	9.72	90.28	4.29	95.79

The results show that considerable amount of alteration has taken place. There is an apparent decrease under the column headed rosin acids (which strictly means total saponifiable matter, including probably anhydrides and esters) and an increase under the head of hydrocarbons. It is unlikely, on purely chemical grounds, that a conversion of the former into the latter takes place. Probably the explanation of the change is to be sought in the volatilization of the lighter acid constituents, and the consequent enrichment of the mass in heavy non-volatile hydrocarbons.

In the paper in which these results appear other differences are recorded and discussed, but being at present still unsettled do not immediately concern us. One deduction is, however, plain—namely, that an oil may undergo profound alteration by exposure, and may well alter in character to such an extent as to become more or less useful in tangible degree. It can, therefore, never be safe to assume that, because a specimen of oil has at one time given certain results, it will necessarily possess identical properties after the lapse of time, particularly if the conditions under which it has been kept have involved its exposure to the atmosphere.

This again opens up a field for investigation, in that not only do all kinds of rosin oil change, but that the tendency of oils of different qualities to alter by exposure varies greatly. It is probable that samples consisting almost wholly of hydrocarbons would prove the most resistant, and if found to be also high in insulating power would be preferable on that account. Direct experiment is, however, much needed.—*Scientific American.*

Roll Paper Cutters.

The machines described are applicable to any service wherein it is or may be desirable to draw paper from a roll package and readily detach the withdrawn portions, but are in the main devised with reference to their use in connection with roll packages or rolls of closet paper. In this latter connection it has been found to involve economy.

A characteristic feature of the machines consists in the combination, with means by which a roll package of paper may be rotatively mounted, of a measuring roll which is rotative by its contact with the paper as it is drawn outwardly and stopping mechanism operated and controlled by the measuring roll, which if not prevented from so doing will restrict the rotation of the roll to one revolution, and thereby gauge or measure the length of paper drawn off, this being predetermined by the circumferential dimensions of the roll; or if the stop motion be for a time rendered inoperative the length of paper will be proportioned to the permitted number of complete revolutions of said roll.

Another prominent feature consists in the combination, with a suitable rotatively mounted blade or cutter, of a roll which determines the length of the paper to be detached by the cutter. In one form of the machines there are four rolls for operation in connection with two roll packages of paper. Although the machine has four rolls they in substance constitute three co-operating pairs of rolls. Under one classification each pair includes one measuring roll and a roll which carries the knife, and hence termed a "cutter roll," and in the other classification the two measuring rolls constitute a third pair, in that each serves not only to release the other from its stopping mechanism, but also imparts a partial forward rotation to the other roll, and in each of the other pairs the two rolls cooperate, in that the measuring roll imparts corresponding rotative movement to the cutter roll and enables it to properly present its knife for service and to hold it firmly at the line at which the paper is to be cut by a torsional longitudinal pull upon the drawn off length of paper, as is common in the use of ordinary straight edged tin paper cutters.

In a simpler form of machine, adapted to deliver from two roll packages of paper, one pair of rolls is employed and these are both measuring rolls, and they are, in combination with knives or cutters, for service as before described, but instead of the knife being carried by or upon separate rolls they are mounted upon the measuring rolls, which are therefore also cutter rolls. These two combined measuring and cutter rolls are in combination with stopping mechanism, and both rolls alternately operate for releasing each other from the intermitting custody of the stopping mechanism, and neither roll can make more than one complete revolution, and only this after it has been released by the other roll after each stop.

In the use of the double machines (requiring two roll packages of paper) a length is first drawn off (and cut) from either one of the packages, and this operation near its close causes the other measuring roll to so operate as to advance a short portion of paper from the other measuring roll, and then by pulling upon this projected end that paper is drawn off until the roll is stopped, and meantime and in like manner a length of paper from the other roll will have been projected, and so on until a desired number of pieces have been procured.

In another form of machine only one roll of paper can be used; but in single machines the measuring roll is also in combination with stopping mechanism and with a cutter. The stopping mechanism in the single machines operates automatically, as in the double machines, but, unlike them, the releasing is not automatic, but requires special manipulation, as distinguished from merely pulling on one or the other of the two lengths of paper, as in the double machines. In one form of the single machines the partial forward movement of the rolls is due to manipulation; but in another form the operation is automatic, immediately following the manipulated release. In the double and in the single machines there is the same step by step or intermitting and alternating delivery of the paper. An alternating system of delivery from lengths of paper in flatly wound roll packages has been heretofore provided for by means of machines embodying a knife or cutter; but the lengths of paper cut varied progressively, the pieces growing shorter as the flat packages were reduced in size, as distinguished from this system of delivery, which affords proper uniform lengths regardless of the gradually reduced circumferential dimensions of the roll packages. The alternating system of delivery is obviously conducive to the non-withdrawal of more paper than may at any time be needed, and also to at least a modern misappropriation of paper carried from the closet, all with such resultant non-wasteful use as will involve substantial economy—in such large hotels, for instance, as expend each year many hundreds and even thousands of dollars for closet paper.

Whiting & Son, window shade and wall paper manufacturers, 431 to 435 West Thirty-first street, New York, have obtained judgment in the Supreme Court against S. A. Maxwell & Co., of Chicago, Ill., for $3,864.08 for supplies furnished between January 15, 1886, and April 1, 1890.

Paper Friction Hoist.

A paper friction hoist consists of a pinion having the rubbing surface formed of paper. In making the disk a great number of thin sheets of paper are tightly compressed together by bolts passing through the central core of iron. Although the first cost of the paper arrangement is somewhat greater than that of cast iron, it is claimed that this is more than counterbalanced by the advantages secured. As the friction between iron and paper is greater than that between two metal surfaces, less force is required on the hand cord of the operating lever to set the machine in motion. The paper will also adapt itself to the contact with the large iron wheel, and the latter will therefore, it is said, run true and require no facing, while the paper disk itself does not wear so rapidly as those constructed of iron.

Wood Pulp, Soda AND Sulphite,
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CORRUGATED.—V. CRIMP. —STANDING SEAM.—
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OF ANY SHAPE OR CAPACITY, FOR
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FREE FROM IRON, ZINC, SPECKS AND FREE ACID.
Also all other grades of Alum and Sulphate of Alumina for Bleaching, Sizing, &c.
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Works at South Wilmington, Mass., on Southern Division Boston and Maine R. R. System.

Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED JULY 8, 1892.

An. Colors..	500	$34,319	Lead Pencils	—	—
Alum.....	8	163	Paper.....	761	$38,270
Alum's Cake	—	—	Steel Pens..	3	303
Bl. Powders	300	8,700	Stationery..	19	1,298
Soda Ash...	2,407	27,159	Slate Pencils	909	3,855
Soda, Caus..	600	9,580	Clay.....	—	3,263
Soda, Sal....	282	1,153	J'te B'ts, &c.	—	—
Soda, Hypo.	—	—	P. Hangings	13	997
Ultramarine	101	2,995	P'p'rStock..	3,754	29,281
Books.....	313	37,965	Terra Alba..	—	—
Newspapers	258	8,305	Waste.....	—	—
Engravings.	104	20,111	Wood Pulp.	2,690	21,028
Printing and Lith. Inks.	33	753	Totals....	13,145	229,338
Writ'g Inks.	—	—			

Imports General Merchandise for the week ending July 8, 1892..... $9,537,967

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO JULY 13, 1892.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria..	510	—	—	—	1,525
Amsterdam..	9	—	—	—	833
Antwerp.....	5,195	127	1,748	—	13,615
Aspinwall ...	850	—	—	—	—
Auckland....	—	—	—	—	735
Barbadoes...	76	—	—	—	—
Bordeaux....	3,331	—	—	—	134
Bremen.....*a*	3,370	—	1,078	—	12,879
Bristol.....	—	—	—	—	3,346
Calcutta.....	—	—	—	—	9,178
Catania	773	—	—	—	—
Cent. Amer..	327	—	—	—	—
Copenhagen .	355	—	857	—	414
Dublin.	—	198	—	—	269
Dundee	—	—	—	—	6,536
Genoa.....*b*	823	—	—	—	3,687
Glasgow	709	196	28	—	685
Gothenburg..	—	—	—	—	404
Hamburg	5,237	481	1,484	—	9,795
Havre.....	83	—	—	—	146
Hiogo.....	3,430	—	—	—	—
Hull	5,041	—	2,870	—	11,476
Kobé.....	3,510	—	—	—	—
Leith.....	—	62	—	—	57
Leghorn.....	2,211	—	—	—	—
Liverpool...*c*	1,613	151	—	—	20,264
London.....	11,141	1,579	98	—	26,460
Marseilles ...	598	—	—	—	3,087
Nassau.....	—	—	—	—	34
Naples.....	—	—	—	—	9
Newcastle ...	—	—	—	—	2,957
Pillau	2,617	—	—	—	751
Rotterdam...	2,432	—	100	—	8,288
Stettin.....	14,004	—	3,053	—	8,357
Swansea	45	—	—	—	—

a. Including 154 bs. cotton waste.
b. Including 755 bs. cotton waste.
c. Including 321 bs. cotton waste.

NEW YORK IMPORTS.

FROM JULY 6 TO JULY 13, 1892.

Paper Stock.

F. Salomon & Co., Othello, Antwerp, 400 bs. bagging.
A. Wertheim & Co., by same, 114 bs. bagging.
W. A. Castle, Rhyniand, Antwerp, 29 tons chemical fibre.
F. Salomon & Co., Berina, Antwerp, 634 bs. bagging.
A. Wertheim & Co., Amsterdam, Amsterdam, 9 bs. rags.
F. Salomon & Co., Fritz, Bremen, 400 bs. bagging.
E. Hatton & Co., by same, 396 bs. bagging.
John H. Lyon & Co., Principia, Dundee, 90 bs. manillas.
Darmstadt & Scott, by same, 10 bs. manillas.
Darmstadt & Scott, State of Nebraska, Glasgow, 130 bs. papers, 29 bs. rags.
J. Libmann & Co., by same, 77 bs. rags.
James Pirnie, by same, 35 bs. papers.
F. Salomon & Co., Moravia, Hamburg, 178 bs. rags, 122 bs. manillas.
A. Wertheim & Co., by same, 46 tons chemical fibre.
Perkins, Goodwin & Co., Hindoo, Hull, 56 tons chemical fibre.
Lewy Brothers, by same, 327 bs. rags.
Atterbury Brothers, by same, 127 bs. rags.
Burgass & Co., by same, 30 bs. rags.
James Pirnie, Iago, Hull, 68 bs. bagging.
F. Bertuch & Co., by same, 12 tons chemical fibre.
Horace Dutton & Co., Principia, Leith, 57 bs. manillas.
Horace Dutton & Co., Tauric, Liverpool, 150 bs. manillas.
James Pirnie, by same, 248 bs. bagging.
John H. Lyon & Co., Spain, London, 72 bs. bagging.
Augustine Smith & Co., by same, 310 bs. papers.
Burgass & Co., by same, 113 bs. bagging.
Darmstadt & Scott, Amenia, London, 102 bs. manillas, 211 bs. papers.
James Pirnie, by same, 125 bs. bagging.
Atterbury Brothers, Ebro, London, 43 bs. rags.
G. Rau, by same, 73 bs. rags.
Darmstadt & Scott, by same, 16 bs. rags.
R. H. Overton & Son, by same, 282 bs. bagging.
E. Hatton & Co., by same, 150 bs. bagging.
Lewy Brothers, Buffalo, London, 146 bs. rags.
Atterbury Brothers, Hindoostan, Marseilles, 150 bs. rags.
J. W. Mason & Co., Elbro, Newcastle, 338 bs. manillas.
G. Stratford, by same, 49 bs. manillas.
Jessup & Moore Paper Company, Rotterdam, Rotterdam, 81 bs. bagging.
A. Wertheim & Co., by same, 124 bs. bagging.
Horace Dutton & Co., Island, Stettin, 56 bs. manillas.
J. W. Mason & Co., by same, 181 bs. manillas.
F. Bertuch & Co., by same, 115 tons chemical fibre.
F. Salomon & Co., Mommsen, Stettin, 131 bs. rags, 108 bs bagging.
Lewy Brothers, by same, 1,661 bs. rags.

Paper.

W. Heuermann, Munchen, Bremen, 6 cs.
H. S. Leclercq, Rotterdam, Rotterdam, 5 cs.
L. De Jonge & Co., Moravia, Hamburg, 14 cs., 43 bs.
E. & H. T. Anthony & Co., by same, 13 cs.
L. De Jonge & Co., Rhynland, Antwerp, 241 cs.
L. C. Wagner, by same, 7 cs.
C. & S., by same, 31 cs.
R. F. Lang, Spree, Bremen, 6 cs.
B. Lawrence Stationery Company, Amsterdam, Amsterdam, 18 bs.
Gane Brothers, by same, 9 cs.
George J. Kraft, by same, 3 cs.
W. Demuth, by same, 27 cs.
A. Origet & Co., by same, 1 cs.
Neuss, Hesslein & Co., by same, 36 cs.
F. J. Emerich & Co., Britannic, Liverpool, 1 cs.
W. H. S. Lloyd, by same, 2 cs. hangings.
McCann & Harris, by same, 4 cs.
Nevius & Haviland, by same, 8 cs. hangings.
G. Gennert, Dania, Hamburg, 17 cs.
W. Campbell & Co., Furnessia, Glasgow, 174 rolls.
Hermann Isaac, La Bretagne, Havre, 30 cs.
Merchants' Dispatch, by same, 3 cs.
Walter & Strauss, by same, 1 cs.
F. W. Devoe & Co., by same, 20 cs.
May Brothers, by same, 4 cs.

BOSTON IMPORTS.

FROM JULY 7 TO JULY 13, 1892, INCLUSIVE.

Paper, &c.

Wm. Guild & Co., Pavonia, Liverpool, 5 bs. periodicals
A. P. Schmidt & Co., by same, 1 cs. printed music.
Long & Langworthy, Milanese, London, 7 cs. papers.
Carter, Rice & Co., Iago, Hull, 17 cs. paper.
White, Son & Co., by same, 9 cs. paper.

Paper Stock.

Train, Smith & Co., Iago, Hull, 1,079 bs. rags.
C. A. Cheney, by same, 164 bs. rags, 84 bs. manillas.
Horace Dutton & Co., by same, 49 bs. rags.
E. Hatton & Co., by same, 239 bs. rags.
Felix Salomon, by same, 54 bs. waste paper.
W. F. Corne, by same, 14 bs. rags.
Train, Smith & Co., Nessmore, London, 108 bs. manillas.
C. A. Cheney, by same, 45 bs. waste paper.
Horace Dutton & Co., by same, 171 bs. rags, 482 bs. flax waste.
J. B. Moore & Co., by same, 120 bs. rags.
Leon Gottheil & Co., by same, 611 pkgs. waste paper.
Train, Smith & Co., Milanese, London, 401 bs. rags, 125 bs. waste paper.
Crocker, Burbank & Co., by same, 396 bs. rags, 160 bs. waste paper.
C. P. Sumner & Co., by same, 55 bs. waste paper.
Horace Dutton & Co., by same, 40 bs. rags.
George W. Wheelwright Paper Company, by same, 117 bs. waste paper.
E. Hatton & Co., by same, 37 bs. rags.
J. B. Moore & Co., by same, 11 bs. rags.
C. A. Cheney, Norseman, Liverpool, 32 bs. rags.
Horace Dutton & Co., by same, 4 bs. and 60 coils manillas, 90 bs. waste paper.
J. B. Moore & Co., by same, 77 coils manillas, 88 bs. waste paper.
J. B. Moore & Co., by same, 8 bs. rags, 943 bs. manillas.

Wood Fibre.

Gill & Lootz, Iago, Hull, 1,595 bs.
Leon Gottheil, Nessmore, Antwerp, 115 tons.

Sizing.

Train, Smith & Co., Iago, Hull, 40 bs.
C. A. Cheney, Norseman, Liverpool, 330 bags.
Thomas Groom & Co., by same, 142 bags.
W. A. Castle, Pavonia, Liverpool, 255 bags.

Bleaching Powder.

J. L. & D. S. Riker, Pavonia, Liverpool, 126 cks.
J. L. & D. S. Riker, Norseman, Liverpool, 168 cks.
J. L. & D. S. Riker, Bostonian, Liverpool, 65 cks.

Caustic Soda.

E. Hill's Sons & Co., Bostonian, Liverpool, 100 drums.

Soda Ash.

Warren & Co., Norseman, Liverpool, 88 cks. and 200 bags.
Wing & Evans, Bostonian, Liverpool, 66 cks.

Refined Alkali.

J. L. & D. S. Riker, Pavonia, Liverpool, 86 cks.

Soda Crystals.

Warren & Co., Norseman, Liverpool, 280 bbls.

Crude Sulphur.

Linder & Meyer, Bostonian, Liverpool, 668 bags.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED JULY 9, 1892.

Books.

Order, Alex. Elder, London, 11 cs.

Paper Stock.

John Blakely & Son, Volanta di Dio, Genoa, 185 bs. cotton waste.
Order, by same, 284 bs. old bagging, 136 bs. jute waste, 52 bs. cotton waste.
Brown Brothers & Co., Nestorian, Glasgow, 124 bs. waste paper.
Order, Alex. Elder, London, 45 bs. waste paper.

EXPORTS of Paper, &c, from New York for the Week Ended July 12, 1892.

BOOKS, cases, to London, 9; to Hamburg, 5; to Argentine Republic, 16; to British Australasia, 7; to Dutch West Indies, 1; to Liverpool, 33; to Mexico, 4; to Newfoundland, 2; to Venezuela, 3; to Chili, 1; to Trebizond, 2; to Brazil, 1; to British possessions in Africa, 10; to Bolivia, 2; to Bremen, 17; to Central America, 3; to Cuba, 3; to Genoa, 1; to Havre, 7; to Hong Kong, 3; to Japan, 4; to Rome 5; to Rotterdam, 1; to San Domingo, 1; to Siam, 1.

PAPER, to Colombia, 100 pkgs.; to Liverpool, 4 cs.; to Dutch West Indies, 14 pkgs.; to Mexico, 96 pkgs.; to Hamburg, 5 cs.; to Brazil, 1,248 pkgs.; to Cuba, 1,215 pkgs.; to Hayti, 1 pkg.; to British West Indies, 465 pkgs.; to British Australasia, 43 pkgs.; to Central America, 46 pkgs; to London, 50 pkgs.; to New Zealand, 77 cs.; to Venezuela, 132 pkgs.; to Bolivia, 7 cs; to Bremen, 4 cs.; to Chili, 4 cs., 2 pkgs.; to Christiania, 3 cs.; to Genoa, 30 cs.; to Hull, 4 cs.; to Havre, 2 cs.; to Porto Rico, 800 pkgs.; to Peru, 1 cs.; to San Domingo, 61 pkgs.

STATIONERY, cases, to London, 39; to Central America, 1; to Liverpool, 4; to Cuba, 36; to Colombia, 20; to Dutch West Indies, 5; to British Australasia, 12; to Brazil, 7; to British West Indies, 28; to Chili, 17; to Mexico, 6; to Venezuela, 3; to Antwerp, 3; to Bremen, 3; to China, 4; to Copenhagen, 1; to Christiania, 1; to Ecuador, 3; to Japan, 13; to Porto Rico, 2; to Peru, 1; to Rotterdam, 3; to San Domingo, 1.

AGGREGATES AND VALUES.

Paper, reams.....	—	—
Paper, pkgs.	4,236	$8,515
Paper, cases.....	187	2,292
Books, cases.....	112	8,842
Stationery, cases..	218	10,200
Rosin, bbls.....	8,628	26,594
Totals	13,326	$56,443

Exports General Merchandise for the week ending July 12, 1892..... $7,792,489

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Derby Street Mills,
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Lancashire, - - ENGLAND,
MANUFACTURERS OF
FELTS
— FOR —
PAPER MAKERS,
Couch Roll Covers, Wet and Dry Felts
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COTTON DRYING FELT.
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WHOLESALE DEALERS IN AND PACKERS OF
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237 and 239 SOUTH STREET, and 66 and 68 UTICA STREET,
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All Grades of Sizing.
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TWINES
Paper Makers' Twines a Specialty.
ASK FOR SAMPLES AND QUOTATIONS.

WALDHOF SULPHITE PULP
STRONG! PURE! FELTY!
OF ALWAYS EVEN QUALITY.
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SOLE AGENT FOR THE UNITED STATES,
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A. WERTHEIM & CO., Times Building, New York,
IMPORTERS OF
Chemical and Mechanical Wood Pulp.
Sole Selling Agents in United States and Canada for { SODA PULP MILLS OF HUGO GRAF HENCKEL, OF DONNERSMARK. FAMOUS "LION BRAND" UNBLEACHED SULPHATE PULP.
"Patent Olive Compound" Lubricating Grease.
Cazenovia Paper and Pulp Felts and Jackets.

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HOWARD LOCKWOOD. WILLIAM P. HAMILTON.

NEW YORK: SATURDAY, JULY 16, 1892.

THE JOURNAL contains the latest and fullest information relative to the paper trade in all parts of the world, including descriptions of new appliances and processes for making paper, experiments with new fibres and other materials, a record of the water supply, with the latest manufacturing news in all parts of the country. It gives the cream of all the foreign technical journals which relate to the paper interest, besides communications from competent persons in the trade, both at home and abroad. The market review and quotations show the state of trade in all the principal cities, and no pains have been spared to make these accurate and complete.

Advertisements cannot be received for insertion in the current week later than 9 A. M. on Friday. The charge for advertising is 25 cents a line, each insertion. The rates for standing and displayed advertisements to be had on application. Card in Directory Column and one copy of paper, $15 a year.

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All Pioneer Publications.

HOWARD LOCKWOOD & CO.,
126 & 128 DUANE ST., NEW YORK.

PAPER mills continue to go up and new ones are projected. When will the industry cease to develop?

No complaints of drought are heard as yet. Anomalous as it may seem, the hot weather is conducive to humidity.

ENGLISH papers are growling because American pulp manufacturers are buying up the timber lands of Canada. If they don't like it they ought to put in the money themselves.

FREE silver coinage has had its *coup de grâce*. The House of Representatives disposed of this little matter quite effectively this week. Let us now wait for the international monetary conference!

IT is surprising to read some of the screeds which appear in the daily papers. The New York *Times*, rabid in its free trade opinions, doesn't seem to know the difference between manilla tissue and copying tissue.

ONE of the cotton mills in New England has notified its employees that it will pay full wages for reduced hours of labor, and has advanced wages 3 1-2 per cent. This was unexpected by the help. No free trade or "tariff for revenue only" about this!

WARM weather and extreme assiduity (?) to the demands of public business have about used Congress up. It is proposed to adjourn at an early day. This indicates foreclosure on the bankruptcy bill. We are sorry. This measure was of greater importance than peanut tariff bills which are bound to die of inanition.

REPORTS from all sections of the country present favorable indications for the coming fall trade. The crops, concerning which there has been much of lamentation, will, it is said, "pan out" fairly good, the losses being confined to small sections and the promise generally being favorable. This is bad news for people who enjoy being miserable.

SOME people cling to the belief, begotten of desire, that tin is not and cannot be produced in this country. Some English stockholders in our Western tin mines, one of them the best known expert in the business, inspected the mines last week. Verdict is that two years hence this country will not need to import tin. Great is truth, and it will prevail!

AMERICAN inventors are discounting all that is said about their ability to produce tin plate in competition with the Welsh manufacturers. A machine has been produced which tins the black plates automatically, and which promises to revolutionize the business. Tin plate mills are turning out increasing quantities of plates, and yet there are those who say that we are not making tin plate. None so blind as they who will not see!

THE terms of the latest order relating to the disinfection of rags will be found in another column. The regulations do not compel disinfection on this side, but a certificate is necessary to the entry of any vessel hailing from infected ports. If our dealers in paper stock, in making contracts with or in buying from foreign packers, shall insist that the consular certificate of disinfection shall accompany each invoice they will or should have no difficulty in landing goods on arrival in this country.

THE fifty-five hour law passed by the legislature of New Jersey does not appear to be acceptable to the heads of manufacturing establishments in that State or to the employees therein. One of the largest concerns in New Jersey, employing over 4,000 hands, has returned to the old hours of labor, and this, it is reported, with the assent and co-operation of the employees. The workmen in other establishments are also said to be in unison with the employers on this point. This indicates that political legislation does not know how to deal with business economic administration.

IT should not be forgotten that the annual meeting of the American Paper Manufacturers' Association will be held on the 27th inst. We regret the disposition of the Western men to hold aloof, for we have hoped that whatever future the organization may have before it would be largely shaped for usefulness by the active and enterprising minds which have built up the paper making industry in our Western States. There should be no sulking because the meeting does not occur at Chicago this year; but, on the other hand, the claims of the West both as to organization and location next year should be strongly presented and by representative men.

THE apparatus described and illustrated on the first page of this issue of THE JOURNAL is designed for grading wood fibre and thereby securing the better quality for use in making the finer kinds of paper. The action of this apparatus is to remove impurities from the fibre and retain the coarser portions of the pulp, while admitting of the discharge of the better stock to the receptacle provided therefor. Briefly stated this apparatus consists of a rotating cylinder having fine slots in its periphery through which the fibre passes to the interior of the cylinder, the latter being mounted in a vat containing the fibre mixed with a sufficient supply of water. Means are provided for keeping the material thus admitted to the interior of the cylinder in motion to pass out through the outlets provided for the purpose.

THE troubles at Homestead, resulting in deplorable scenes of violence, are not the result of the tariff. There is testimony on both sides that the issue is not so much one of wages as it is of authority, the question being as to who shall control the management of the immense works, the owners of the iron mills or the trade union. Were we to bring the tariff into this relation and admit it as a part of the controversy, it would appear that under the protection afforded by it American workmen have been enabled to earn high wages, greatly in excess of those paid to men engaged in the same line of work in other countries. No one disputes the right of the employed to make combinations and to endeavor to protect themselves by all peaceful means thereby; but when they go further and deny to the employer the exercise of the liberties and rights which they claim for themselves, they are attempting to establish an autocracy of labor which is oppressive. In another column will be found an extract from one of the daily papers of this city, which sets forth clearly and sensibly the principles upon which the proper relations of the employer and employed are established. We commend it for perusal by those whose sympathies may overpower their judgment.

Watermarks.

BY DANDY.

An old acquaintance who has a fondness for curiosities has left with me a copy of the *Royal Gazette*, of Tuesday, July 3, 1782, published in New York, just 110 years and 13 days ago to-day. Some of its paragraphs take one back to "ye olden tyme" when simplicity reigned supreme.

Listen to this "ad.," for instance. "Sugar house paper to be sold; enquire of the printer." No commission man there evidently. This is followed by another which reads: "Portable soup of beef and veal for ladies and gentlemen going to sea, used in sickness or health." This, too, is to be had of the "printer."

The fact is that almost all of the strawboard goods advertised at that time could be got by applying to the "printer."

Here's an "ad.," however, of another kind entirely. It reads as follows: "*Run away* from the subscriber a negro wench named Venus, about 26 years old; this is to warn all masters of vessels and others from harbouring or carrying off the said wench as they shall answer for it as the law directs." Of course Venus was an exception to the rule, as she evidently couldn't be got at the printer's.

A big display headline advertises that a school will be opened at 64 Beekman street for young ladies, and that reading, writing and arithmetic will be taught.

But here's a chance which in these days it is questionable if a man would jump at. An enterprising fellow from Peck slip advertises for teeth. With more snap than grammatical correctness the fellow says: "Any person that is willing to dispose of their front teeth may hear of a purchaser by applying to 28 Maiden lane. * * * N. B.—Four guineas will be given for every tooth."

The cartridge paper for cannon, muskets, &c., could also be had by "applying to the printer." Besides these, "fiddles of an excellent quality" could be got from the printer.

The incorporators of a Western paper manufacturing company went before Jennie E. Hamlin and acknowledged that they were the people they represented themselves to be. As this act was necessary in preparing the paper of incorporation, and as Jennie is a notary public of the great State of Minnesota, it is all right; but without this explanation most people would be surprised at the proceedings.

"What are you doing?" yelled a paper man to his barber as the razor slipped and cut a gash. "Nothing," said the tonsorial artist. "I was just trying a new slitter."

A cheerful, "chipper" member of the trade is now bowed down under an attack of boils, and when he was told to remember Job he said: "Job wasn't in it. He had boils, to be sure, but then he could sit around in his garden and devote his whole energy and thought to the enjoyment of them. He didn't have to attend to boils and blotting paper at the same time."

Jute butts and bagging are both members of an unfortunate family according to one man. "If you didn't have them here," he says, "you would be offered big prices for them, but if you have them here nobody wants them at any price." Strange, isn't it?

A young man in the paper trade who was much given to monopolizing the talk of the crowd was advised to add a new "set of dryers" to his mouth.

That gray headed pensioner, disinfection, is around again, and microbes, bacilli, micrococci and their sisters, cousins and aunts are hereby warned against attempting to sneak into this county by hiding in bales of rags. "Uncle Sam" is on the look out for these invaders with the peculiar names and proposes to give them a warm reception. If he wants to make it real hot for them why not ask "Brer" Bartlett to get out his superheated steam apparatus again.

Some orders have already been issued as to disinfecting rags on the other side at certain ports, and the supervising surgeon general intimates that if cholera is going to tear around loose on the other side the importation of rags will be prohibited entirely. Well, that would be interesting, but I presume that as long as the supply of wood keeps up the mills will be able to run.

The young men who wear their last summer's trousers or buy their nether incasements from second-hand clothing stores in Baxter street and like localities are very assiduous in the use of the flat iron. If you see a fellow wearing creased trousers you may be sure that his garments are of doubtful age.

Trade Talks.

Leon Gottheil—The rumor which was prevalent in this market a few days ago to the effect that the Government was about to prohibit the importation of all rags is without foundation. No circular or other notification has been issued as to such intention. The importations from France and England have, as you know, been already prohibited, which embarrasses us to some extent, inasmuch as we obtained a great many of our shipments by the way of England. This contagion through rags is in a large measure imaginary. I do not say that precautions ought not to be taken, or that we ought not to take prompt measures wherever danger is threatened; but is it not reasonable to suppose that self interest alone would prompt us to be careful? We have the most to lose in case we don't. There certainly is not much danger of disease in rags coming from the northern countries of Europe, because these nations themselves are exceedingly careful to stamp out the germs if there be any. We employ about 500 hands in Ghent who handle rags, and during the recent epidemic of smallpox in that city we only had two cases. But I have here an affidavit dated June 13, made by the chief health officer of Ghent, and subscribed to by the American consul, which states in clear terms that Ghent is now clear of smallpox and that the best hygienic precautions exist in that city. In regard to the process which the importers may employ in case we have to resort to disinfection here, the Government gives us the choice of four, and that which we favor is that which provides for an exposure for not less than three hours to an atmosphere containing 3 per cent. of sulphurous acid gas liberated from its liquid state. I do not anticipate any trouble, however.

Philip M. Knight, of John H. Lyon & Co.—In my judgment there is a good deal of humbug about this disinfection. I have not heard that the Government contemplates any further movements in regard to the cholera scare. It is certain, however, that while there should be ample precautionary measures taken, it is equally true that the greatest care is generally taken by those who ship the rags and by those who handle them. Besides, the consuls abroad have their instructions and they know their business. The scare of contagion has little foundation. Hospitals are careful to burn their rags, mothers and nurses are as a rule just as careful to burn up what is likely to spread contagion, and as far as I remember only one authentic case of fever due to rags has been traced in this country, and that occurred many years ago at Holyoke. Besides, the chemicals used in paper mills are disinfectant enough in themselves almost. We do not get the quantity of rags now to what we did by 80 per cent., and the time may arrive when before long, with the march of improvement and the constant experimenting for substitutes, no rags will be wanted from abroad, not even for the fine papers. We shall, in fact be independent of European rags by and by and the scares about cholera and cholera germs will then perhaps take a rest.

G. Rau.—I have not heard anything of further intention on the part of the Government regarding rag shipments. The scare about cholera is unfounded; the outbreak is nothing but cholerine, which makes its appearance every year and does not amount to much.

Col. G. W. Thompson, Diamond Mills Paper Company—The story printed in the *Times* as to the effect of the tariff on the manufacture of tissue paper is not a true statement at all, and the opinions which it attributes to me were not expressed or held by me. In the first place it states that the manufacturers of tissue paper are endeavoring to form a trust, as the protection given them by the new tariff has worked disastrously. The fact is that the manufacturers of tissue manilla paper are endeavoring to form an association, and that is a branch of the trade which the tariff, while applicable thereto, did not and does not now affect at all. It is not made at any of the mills owned by our company, and is a distinct branch of the trade. There was a very good demand for tissue manilla last winter from the orange growers, and the scarcity of paper then led a number of mills which were running on straw wrapping to go on to tissue manilla. That, of course, caused overproduction and a decline in prices, and the manufacturers are now seeking to better their condition. The paper which the tariff does protect is letter copying paper and grass bleached tissue. Those grades we do make. There is published in the *Tribune* an interview had with me which is substantially correct and to which I refer you.

A Big Paper Mill Deal.

[By Telegraph to THE JOURNAL.]

HOLYOKE, Mass., July 15, 1892.

William Whiting, treasurer of the Whiting Paper Company, has bought of J. N. Fiske, of Boston, 1,000 shares of the company's stock. The price paid for same is not far from $500,000.

This transfer gives Mr. Whiting entire control of the company. It is the largest business transaction in the paper trade in Holyoke which has taken place for some time. H.

Communications.

An Address Wanted.

SAN FRANCISCO, July 5, 1892.

Editor of The Journal:

Please give me the address of a company which manufactures the hardest chemical or wood pulp paper.

I desire a half dozen sheets of its heaviest paper, about a quarter to half an inch thick, and 6 inches square, for experimental purposes. The purpose will be to see if the paper after being put to the heaviest hydraulic pressure in its manufacture will be durable and strong enough to take the place of metal for certain uses on which I am making experiments.

Please send any letter to some company (if convenient) which manufactures hydraulic pressed pulp goods.

J. B. AGNEW,
321 Montgomery street.

Rioting Should Not Be Tolerated.

NEW YORK, July 9, 1892.

Editor of The Journal:

Your reporter made a mistake in reporting the interview he had with me. I stated that the first thing to be done was to put Carnegie, Phipps & Co. in possession of their property and that it was the duty of the public officials to protect life and property, and that rioting or revolutions should not be tolerated.

Furthermore, I think that there should be a law passed in the different States making it illegal to employ Pinkerton detectives, as they are, generally speaking, a reckless set of men taken from the cities. There is such a law in New Jersey, and I see by the papers that the State of Kentucky passed such a law yesterday. I hope you will publish this letter, as from the interview in to-day's JOURNAL it would appear as if I favored rioting. THOMAS BARRETT.

Changes, Removals and New Firms.

Thomas Forbes, Jr., stationer, Sherman, Tex., has sold out.

Alexander Brothers, job printers, Spokane, Wash., have sold out.

J. H. Miner, bookseller and stationer, New Britain, Conn., has sold out.

Lizzie J. Caryl, bookseller and stationer, Kalamazoo, Mich., has sold out.

Schubmehl & Co., publishers, Olyphant, Pa., have dissolved partnership.

Bigelow & Co., lithographers, Springfield, Mass., have dissolved partnership.

The stock of H. P. Hyam, bookseller, stationer, &c., Shreveport, La., has been sold.

J. H. Schmidt has opened a printing office at 244 East Thirtieth street, New York.

The Canadian Newspaper Company, Canadian, Tex., has been succeeded by C. M. Hall.

Mechen & Geddis, booksellers and stationers, Battle Creek, Mich., have dissolved partnership.

E. E. Blackburn, bookseller, &c., Florence, Kan., has been succeeded by Kates & Blackburn.

The *Independent Era* Publishing Company, North Platte, Neb., has been succeeded by J. W. H. Lingham.

The High Falls Sulphite Pulp and Mining Company has been organized at Potsdam, N. Y. Its officers are Geo. Z. Erwin, president; W. R. Weed, vice-president; C.

E. Sanford, secretary; H. P. Barnhart, treasurer. The directors are H. L. Ives and S. L. Barnhart, of Potsdam, and Julius Spiro, of Watertown.

Robert L. Farish has opened a printing office at 231 Laurel street, New Orleans, La.

A book and stationery store has been opened by Ritter Brothers at 286 Main street, Poughkeepsie, N. Y.

The Union Printing Company, Bridgeport, Conn., has been succeeded by the Union Publishing Company, incorporated.

C. H. Blakely & Co., printers and blank book manufacturers, Chicago, Ill., have been succeeded by Blakely & Rogers.

G. P. Graham, of the Morrisburg, Canada, *Herald*, has sold out to Plautz & Warren, who for several years have been his assistants.

The Potter Belt Hook Company has been organized at Hartford, Conn., for the purpose of manufacturing an improved belt hook.

E. H. Dodson and others, of Glenville, W. Va., have chartered the Gilmer County Publishing Company, with a capital stock of $3,000.

Higgins, Snow & Co., paper and twine dealers, Boston, Mass., have dissolved partnership. Josiah P. Higgins continues under the old style.

The Goodwin Law Book and Publishing Company, Limited, of Toronto, Canada, has applied for incorporation. The capital named is $50,000.

Charles D. Whitall & Co., dealers in books and stationery, Minneapolis, Minn., have been incorporated as the C. D. Whitall Company. The capital is $25,000.

Colin McArthur & Co., manufacturers of paper hangings, Montreal, Que., have dissolved partnership. The business will be continued under the same firm name.

John Woods has bought a half interest in the book and stationery business of Louis D. Cooper, Hot Springs, Ark., and the style of the firm is now Cooper & Woods.

John J. O'Connor and John J. Lynch have formed a copartnership under the style of O'Connor & Lynch, and have opened a printing office at 459 West Thirtieth street, New York.

Cornelius A. Van Rees, Abraham C. Van Rees and Peter J. Van Rees have opened a printing establishment at 162, 164 and 166 Leonard street, New York, to be known as the Nassau Press Rooms.

A branch office has been established at 266 and 268 Wabash avenue, Chicago, Ill., by the United States Book Company, of New York, formerly the J. W. Lovell Company, and R. Crook is in charge.

A. C. McClurg & Co., of Chicago, Ill., have sold their interest in the *Dial* to Francis F. Browne. Mr. Brown has been the editor of the periodical since its establishment. He has also been a part owner since that time.

Maurice Minton, manager of the *Illustrated American* Publishing Company, has formed a copartnership with J. D. Dean for the sale of books on the instalment plan, with offices in the Bible House, New York city.

H. P. Roberts, C. S. Chapman, Johnson Chapman, William Kavanagh, W. G. Brown, R. Carl and H. S. Waters, Little Rock, Ark., have incorporated the Arkansas Lithograph and Printing Company, with a capital stock of $50,000. Mr. Roberts is president, C. S. Chapman vice-president, and Johnson Chapman secretary and treasurer.

The Siouski Paper Company, of Brownville, Jefferson County, N. Y., has been incorporated to manufacture and sell wood pulp and paper in its various forms. Capital, $50,000, and directors, Russell B. Biddlecom, Henry M. Stevens and Hannibal Smith, of Watertown; Melvin J. Jerome, of La Fargeville, and Alfred A. Holmes, of Redwood.

The George W. Ogilvie Company, publisher, Chicago, Ill., has been granted a certificate of incorporation. The capital stock named is $50,000, and the incorporators are George W. Ogilvie, Nathan Corwith and Lewis W. Parker.

Wood & Parker, lithographers, printers and publishers, 1 and 3 East Thirteenth street, New York city, have incorporated as the Wood & Parker Lithographing Company, with an authorized capital of $50,000. The officers of the company are: Otis F. Wood, president; Clark W. Parker, vice-president, and Charles A. Preston, secretary and treasurer.

Failures.

The assignee of W. L. Houfgun, stationer, San Antonio, Tex., has paid the creditors a dividend of 57 per cent.

A. P. McElroy, stationer, &c., Washington, D. C., has assigned to John M. Barrett. Liabilities about $9,000; assets about $6,200, of which $4,500 is stock and $1,700 bills receivable, about one-half of the latter being collectable.

J. A. Pelletier, dealer in wall paper, Kansas City, Mo., has made an assignment. Liabilities, $4,500; assets, $3,000.

Fires.

H. Brosius & Son, printers, San José, Cal., have been burned out.

G. H. Eastwood, publisher, Ellsworth, Minn., has been burned out.

Hurlbut Brothers, printers, San José, Cal., have been burned out.

H. J. Ormsbee, photo-engraver, Syracuse, N. Y., has had a loss by fire.

J. W. Yale, dealer in paper hangings, Syracuse, N. Y., has suffered loss from fire.

E. E. Leake, publisher of the *Democrat*, Woodland, Cal., has met with a loss by fire.

The office of the St. Johns (N. F.) *Telegram* was burned in the conflagration at that city on Saturday, the 9th inst.

French & Co.'s book and stationery store, Mankato, Minn., caught fire on July 4, it is supposed from firecrackers, and the stock and building were injured to the extent of $2,000. Fully insured.

A fire broke out on the dock at the foot of State street, Troy, N. Y., on the afternoon of the 13th inst., and flames were communicated from bales of cotton to a large storehouse occupied by J. Ouderkirk, dealer in rags. The contents of the building were destroyed. The loss amounts to $5,000, which is partially covered by insurance.

The paper mills of the Martin & William H. Nixon Paper Company, at Twenty-fourth and Vine streets, Philadelphia, Pa., were slightly damaged by fire on July 10, caused, it is thought, by sparks from a passing freight engine on the Baltimore and Ohio Railroad, which runs close to the mill buildings. The fire was confined to a wooden structure directly beneath the tanks over the filter. The loss will not exceed $300.

In Town.

George Barden and T. A. Mole, Adams, Mass.; Chas. M. Phelps and Moses Newton, Holyoke, Mass.; C. S. Mayo, Lawrence, Mass.; G. B. Hanford, Ticonderoga, N. Y.; H. E. Mead, Dayton, Ohio; C. C. Benton, Lee, Mass.; G. C. Sherman, Watertown, N. Y.

General Notes.

Z. M. Baird, publisher, South Sioux City, Neb., has had an attachment placed upon his property.

The La Crosse, Wis., Book and Stationery Company has been awarded the contract for furnishing that city with stationery, &c., during the coming year. Its bid was $1,689.07, which was the lowest made, the highest being $2,051.11.

Gustave Heerbrandt, president of the Heerbrandt Publishing Company, 54 Beekman street, New York, was arrested by United States deputy marshals on the 8th inst. He was arraigned before United States Commissioner Shields. He was charged with having in May last sent to the *Chronicle*, Washington, D. C., an obscene card which the firm had published. The picture was a political cartoon. Heerbrandt waived examination and was released on $500 bail to await the action of the grand jury.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, July 15, 1892.

THE MONEY MARKET. — The stock market is dull. The loan market ruled steady. Bankers' balances loaned on call on stock collateral at from 1½ to 2½ per cent., ruling at about 2 per cent. Rates for time loans are: Thirty days, 2½ per cent.; 60 to 90, 3 per cent.; four months, 3½ per cent., and five to six months, 4 per cent. Mercantile paper is in better supply. Brokers report rates as follows:

	Sixty days.	Four months.
Double named—		
First-class	3½@4	3½@4
Good	4 @ 4½	4 @ 4½
Single named—		
First-class	4 @ 4½	4 @ 4½
Good	4½@5½	4½@5½
Not so well known	5½@6½	5½@6½

The market for sterling was a shade easier. Few bills against grain shipments are offering, and until commercial bills become more plentiful transactions are likely to continue on a small scale. Posted rates were $4.88 for sixty days and $4.89½ for sight. Actual rates were $4.87@4.87¼ for sixty days and $4.88¼@4.88½ for sight.

THE PAPER TRADE.—The manufacturers of tissue manilla, who held a meeting last week, as noted in THE JOURNAL, are endeavoring to form a corporation to consolidate their interests. Some twelve or fifteen manufacturers have agreed to go into the movement under certain conditions, and as soon as committees appointed to appraise properties and to draft a plan of operation are ready to report another meeting is to be held, at which it is probable some definite action will be taken. There is little in the way of change in the market generally. Writing mills as a rule keep up a good degree of activity. Book is in fair call, although not as active as is desirable. Manilla is in fair call. News is active and Straw Wrappings are having an average trade.

JUTE BUTTS.—There is no business at all doing in the jute butt market, and of course no transactions to fix prices. Paper butts on spot continue to be quoted at 1⅞c. New crop jute has advanced, and owing to this, and the fact that it is yet too early to determine what the extent of the new crop is, some sellers have withdrawn from the market for the present.

WOOD PULP.—Ground wood continues to move along at a steady gait, but there is no marked activity in the market. The prices have not changed.

WOOD FIBRE.—Sulphite and soda fibre are in pretty good demand, and the call for domestic makes of the latter is brisk. Domestic Soda Fibre ranges from 3¼@3½c. for Bleached. Domestic Sulphite is moving at 2¾@3½c., as to quality, for Unbleached, and 3½@3¾c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@3.05c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, 2¼@3½c.; Bleached, do., 3.85@4¼c.; Bleached Straw Pulp, 4@4½c. Imports this week aggregated 258 tons, being 29 tons from Antwerp, 68 tons from Hull, 46 tons from Hamburg and 115 tons from Stettin.

FOREIGN RAGS AND PAPER STOCK.—The market for foreign rags is quiet, and orders are small and unimportant. Imports for the week aggregated 8,182 bales and 258 tons, being 2,997 bs. rags, 686 bs. papers, 258 tons chemical fibre and 4,499 bs. manillas. Ports of shipment and quantities are as follows: Amsterdam, 9 bs. rags; Antwerp, 29 tons chemical fibre, 1,148 bs. manillas; Bremen, 805 bs. manillas; Dundee, 100 bs. manillas; Glasgow, 106 bs. rags, 165 bs. papers; Hull, 484 bs. rags, 68 tons chemical fibre, 122 bs. manillas; Leith, 57 bs. manillas; Liverpool, 398 bs. manillas; London, 278 bs. rags, 521 bs. papers, 844 bs. manillas; Marseilles, 150 bs. rags; Newcastle, 387 bs. manillas; Rotterdam, 205 bs. manillas; Stettin, 1,792 bs. rags, 115 tons chemical fibre, 345 bs. manillas.

DOMESTIC RAGS.—There is a fair movement and prices are not materially changed.

BAGGING, &c.—There is no life in the market for Gunny Bagging just at present, and offers of August and September shipments at 1¾c. do not find takers. Wool Tares are quoted at 1.40@1.45c., and in Mixed Bagging we note sale 50 tons at 95c. Manilla imports for the week aggregated 4,499 bales, ports of shipments and quantities being: Antwerp, 1,148 bs.; Bremen, 805 bs.; Dundee, 100 bs; Hull, 88 bs.; Hamburg, 122 bs.; Leith, 57 bs.; Liverpool, 398 bs.; London, 844 bs.; Newcastle, 387 bs.; Rotterdam, 205 bs.; Stettin, 345 bs.

OLD PAPERS. — There is a fair demand for the better grades. We quote: No. 1 Hard White Shavings, 3⅛@3¼c.; No. 1 Soft White do., strictly free from wood, 2.65@2.75c.; Soft White do., ordinary, 2½c.; Old Ledgers, 2⅛@2¼c.; Solid Printed Books, 1.50@1.55c.; Mixed Shavings, No. 1, 1.25c.; Mixed Shavings, No. 2, 1@1⅛c.; Extra No. 1 Manillas, 1.40c.; No. 1 Manillas, ordinary, 1.20c.; No. 2 Manillas, .90@1.05c.; Light Book Stock, 75@80c.; Folded News, 60@70c.; Mixed Papers, 35c.; Commons, 25c.; Bogus Manillas, 60c.; Straw Clippings, 50c.; Binders' do., 50c.

STRAW.—Prices are regular on moderate demand. We quote: No. 1 Rye at 55c.; Short Rye at 40@45c.; Oats at 40c.

ROSINS.—There is a fair trade and prices are unchanged. We quote in lots from the yard: Common to Good Strained, $1.47½@1.52½; E, $1.65; F, $1.70@1.75; G, $1.80; H, $1.95; I, $2.40; K, $2.85; M, $2.95; N, $3.05, and W. G., $3.25@3.30.

CHEMICALS.—The market for paper makers' chemicals is very quiet. Under date of June 29, J. P. Brunner & Co. speak of the Liverpool market as follows: "The dullness in heavy chemicals still continues, and, if anything, is intensified by the near approach of the Parliamentary elections. With the exception of the reduction in prices for chlorate of potash there is practically nothing new to report in the position. Soda Ash—There is practically nothing offering by the Alkali Company for the balance of this year, with the exception of small barrel orders. Quotations therefore are quite nominal as follows: Caustic Ash, 48 per cent., £5 6s. 3d. per ton, net cash; 57 and 58 per cent., £6 7s. 6d. per ton, net cash; Carb. Ash, 48 per cent., £5 9s. 9d. per ton, net cash; 58 per cent., £6 12s. 9d. per ton, net cash; Ammonia Ash, 58 per cent., £6 7s. 6d. per ton, net cash. Soda Crystals are dull, and nominal quotations are £3 7s. 6d. to £3 10s per ton, less 5 per cent., but for a round order the lower figure might possibly be shaded. Caustic Soda is quite neglected, and quotations are nominally as follows, viz.: 60 per cent., £9 2s. 6d. per ton, net cash; 70 per cent., £10 5s. per ton, net cash; 74 per cent., £11 5s. per ton, net cash; 76 per cent., £12 5s. to £12 19s. per ton, net cash. For parcels under 10 tons 5 per cent. extra is charged. Nothing to be had on this market for export to your side. Bleaching Powder is scarce and steady at £7 15s. @ 8 per ton, net cash, for hardwood, for all quarters except to United States and Canada." In the local market Bleaching Powder on spot is quiet, but future shipments are having considerable attention. American Sal Soda has been advanced and is now 1.10@1.15c., f. o. b., less 1½ per cent. for cash. Caustic Soda is in very light supply on spot, and prices are very firm. Alkali is not active, although there is a steady movement of supplies under present contracts. Caustic Soda is in fair demand. During the week there have been sales of 280 cks. Bleach at 2.15c.; 300 tons Soda Ash at 1.55 @ 1.70c.; 100 tons 58 per cent. Alkali at 1.42½@1.60c.; 100 drums Caustic at 3.10@3.15c.; 300 tons Natrona Porous Alum at 2½c.; 150 bbls. Keystone Alum at 1¾c.; 10 cases German Ultramarine at 17¾c.; 100 bbls. Ground Alum at 1¾c.; 100 bbls. Lump Alum at 1.65c.; 5 bbls. American Ultramarine at 14c.

CHINA CLAY.—Manufacturers are taking advantage of the dull season to shut down and take account of stock. The market is consequently flat and prices are nominal. The quoted is $13@18, according to quantity and grade.

TWINES.—There is an average trade in progress. Quotations are as follows: Cordage—Manilla Rope, half inch, 12¼c.; Sisal Rope, half inch, 11¾c.; New Zealand Rope, half inch, 6¼c.; Jute Rope, half inch, 7c.; Sisal Hay Rope, 11¼c.; Sisal Lath Yarn, fine, 9¾c., and medium, 9¼c.; Jute Lines, 7½c.; Jute Ready, 7c.; New Zealand Hay Rope, 6¼@7¼c.; New Zealand Lath Yarn, fine, 5½c., medium, 5c. Twines—Hemp, 4½ and 6 B Russia, 12c.; 4½ and 6 A American, 12c.; 4½ and 6 D Jute, 9½c.; 4½ and 6 L Jute, 9c.; Hemp Ball, 18 B C, 17c.; 18 C, 15c.; Russian Hemp Hay Rope, 9c.

COAL.—Trade is dull. There is no life and nothing except lethargy apparent on the New York market. It is said that the tonnage being placed is small even for the month of July and that the recent circular advance has not brought out a rush of orders. The reason is only too evident, for the dealers have a full supply in yard, and are not putting out any great supply to the "ultimate consumer;" many of these are said to have had their supply put in during May and June, and it is therefore not unexpected that July (and perhaps August) will be classed as dull months in moving the hard coal tonnage from the producer to the consumer. Philadelphia reports that there is no scarcity of coal anywhere, but there are no more shaded quotations and there is a disposition among the representatives of the producing companies to go slowly, because of the hardening tendencies thought to be at work at all points. There is a good deal of talk about advanced and advancing prices; but it is impossible to give any facts in regard to this beyond those already known, namely, that prices have been nominally advanced and that coal is in some instances bringing a little more money than a month ago.

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PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.18	@	$0.24
Flat Caps, superfines	14	@	16
Flat Caps, fines	11½	@	13
Flat Caps, engine sized	7½	@	9
Blotting, American	8	@	15
Blotting, English	17	@	....
Book, super sized and calendered	6	@	9
Book, super sized and tinted	6	@	7½
Book, extra machine finish	5½	@	6
Book, machine finish, low grade	5	@	5½
News, No. 1	4	@	4½
News, rag and wood	3	@	3½
Poster	5	@	7
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3½	@	4
Hanging, brown	2½	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9½
Colored papers, tissues, 20 × 30, ℔ ream	1.10	@	1.35
Tissues, black, 20 × 30, ℔ ream	1.40	@	1.50
White tissue, 20 × 30, ℔ ream	85	@	1.00
White tissue, 24 × 36, ℔ ream	1.30	@	1.50
Manillas, Flour sack, cream	10½	@	12
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6¾
Manillas, No. 1, heavy weight	6¾	@	6½
Manillas, No. 2	5	@	6
Manillas, Bogus	2¾	@	3½
Wrapping Parchment	16	@	20
Tissue Manillas, full count, weight and size, 24 × 36, other sizes in proportion	75	@	80
Hardware, light colored, No. 1	9	@	10
Hardware, No. 1, glazed, tarred	7	@	8
Hardware, No. 1, glazed	4½	@	5
Binders' Boards, ℔ ton, No. 1	70.00	@	90.00
Binders' Boards, ℔ ton, No. 2	40.00	@	50.00
Strawboards, air dried, No. 1, ℔ ton	47.50	@	....
Strawb'ds, steam dried, No. 1, ℔ ton	....	@	40.00
Strawb'ds, steam dried, No. 2, ℔ ton	....	@	37.50
Straw Wrapping, basis, 15 × 20, 15½ lbs., 20 sheets—			
36 × 40, from 38 to 42 lbs. ℔ rm	85	@	....
30 × 40, from 30 to 34 lbs. ℔ rm	....	@	72
24 × 36, from 24 to 26 lbs. ℔ rm	....	@	60
22 × 32, from 24 to 26 lbs. ℔ rm	56	@	....
20 × 30, 21 lbs., ℔ rm	....	@	44
20 × 30, from 14 to 17 lbs. ℔ rm	36	@	....
16 × 22, from 12 to 13 lbs. ℔ rm	28	@	....
18 × 28	....	@	32
15 × 20, 10 lbs. ℔ rm	....	@	22
15 × 20, from 7 to 8½ lbs. ℔ rm	18	@	....
14 · 18	....	@	16
12 × 16	....	@	14
11 × 15	....	@	12
Straw Wrapping, ℔ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ℔ lb., light weight	2½	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12x18	18	@	20
14x20	22	@	....
Card Middles, ground wood	5½	@	6¼
Card Middles, long fibre wood	8¾	@	9
Card Middles, rag and wood	6	@	9
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Woolen Rags.

Comforter Stock	8	@	9
White Woolens	9	@	10
Blue Gray Stockings	7	@	8
White Stockings	15	@	16
Blue Flannels	6	@	7
Reds, old	7½	@	8
Reds, new Shirt Clippings	20	@	21
Mixed Softs, free of Carpets	7½	@	8
Seamed Cloth	3½	@	4
Skirted Cloth	2½	@	2
New Cloth Clips	6	@	6¼
New Satinets, clean stock	2¾	@	3½
Satinets, old	1	@	1½
Seams	1¾	@	1¾
Delaines, stripped for extract	2½	@	3⅝
Blankets, Woolen	2½	@	2⅝
Wool Carpets	4	@	4⅝
Mixed Carpets	⅜	@	....
White Linseys	3	@	3¼
Mixed Linseys	1½	@	....

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	6¼	@	6¾
Mill Assorted Whites	5	@	5¼
Unbleached Muslins	5¼	@	5¾
City Whites, No. 1	3¼	@	....
New Seconds, light	2¾	@	3
New Seconds, dark	2¼	@	2½
No. 2 Whites	1½	@	....
Cotton Canvas, No. 1	3½	@	....
Linen Canvas, No. 1	....	@	5½
Country Mixed, free of Woolens	75	@	1
Seconds (City)	90	@	1
Colors, ℔ 100 lbs	....	@	....
Manilla Rope	2.40	@	....
Manilla Rope, tarred	....	@	2
Gunny Bagging, No. 1	....	@	3½
Gunny Bagging, No. 2	1	@	1½
Burlap Bagging, No. 1	....	@	....
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1¼	@	1½
Hemp Twine Stock	2¾	@	....
Jute Waste	1½	@	⅞

Pulps and Fibres.

Ground Wood, domestic, delivered	1¼	@	1.35
Ground Wood, foreign, ex dock	....	@	....
Soda Fibre, domestic, unbleached	....	@	....
Soda Fibre, domestic, bleached	3¼	@	3½
Soda Fibre, foreign, unbleached	2.65	@	3
Soda Fibre, foreign, bleached	3½	@	3.90
Sulphite, domestic, unbleached	2.60	@	3
Sulphite, domestic, bleached	3½	@	....
Sulphite, foreign, unbleached	2¾	@	3⅜
Sulphite, foreign, bleached	3.90	@	4¼

Japanese Rags.

Blues, Hiogo	1⅞	@	..

Chemicals, Coloring Materials, &c.

Alkali, 48 ℔ cent	1.47½	@	1.55
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1¾	@	⅞
Alum, Diamond	....	@	2½
Alum, pearl	2¾	@	2¼
Alum, porous	2¾	@	2½
Aluminous Cake	....	@	1¼
Anti-Chlorine	....	@	2¼
Bichromate Potash, American	....	@	10
Bleaching Powders, spot and to arr.	2.15	@	2.30
Cambridge Ochre	1.25	@	....
Caustic Soda, 60 ℔ cent	3.10	@	3.30
Clay, China, English, ℔ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ℔ ton	9.50	@	10.00
Clay, Terra Alba, French, ℔ ton	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9½
Potato Starch	4½	@	4⅝
Prussian Blue, dry	20	@	35
Prussiate Potash, American	....	@	24½
Rosins, common to good strained, ℔ bbl	1.47½	@	1.52½
Rosins, E, ℔ bbl	1.65	@	....
Rosins, F, ℔ bbl	1.70	@	1.75
Rosins, G, ℔ bbl	1.80	@	....
Rosins, H, ℔ bbl	....	@	1.95
Rosins, I, ℔ bbl	2.40	@	....
Rosins, K, ℔ bbl	....	@	2.85
Rosins, M, ℔ bbl	2.95	@	....
Rosins, N, ℔ bbl	....	@	3.05
Rosins, W G, ℔ bbl	....	@	3.30
Sal Soda	1.10	@	....
Soda Ash Caustic, 48 ℔ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ℔ cent	1.57½	@	1.70
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2¼
Sulphuric Acid, 66 ℔ cent	1	@	1¼
Ultramarine, blue	14	@	17¾
Venetian Red	1	@	1½
Vitriol, blue	5½	@	5⅝
Yellow Ochre Rochelle	1.35	@	1.50

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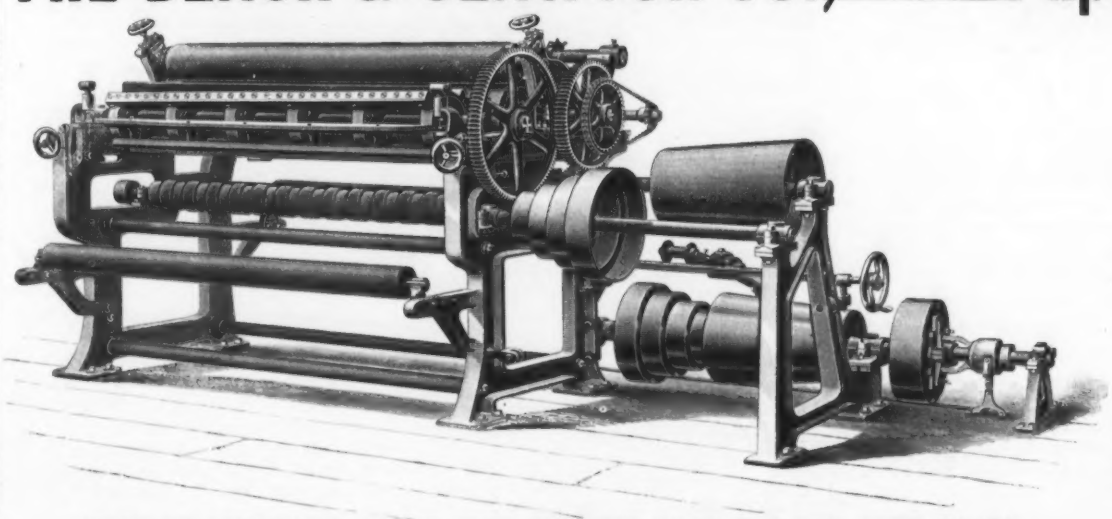

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In the process of manufacture of wood pulp for news and other paper such progress has recently been made that the older machinery in Eastern mills is now at a disadvantage.

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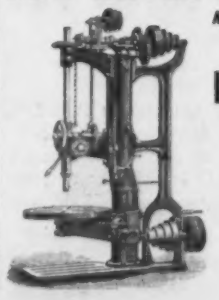

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Manufacture Cylinder Paper Machines, Rag Engines, Paper Cutters, Super and Machine and Chilled Iron and Paper Roll Calenders, Stuff and Fan Pumps, Shafting, Pulleys, Gearing and Paper Mill Machinery generally. Rolls Accurately Reground.

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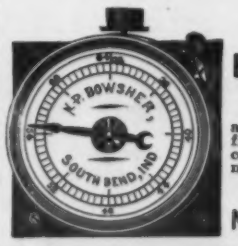

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Is indispensable in obtaining a uniform speed of machinery.

It is used everywhere that a uniform motion is essential or desirable, and is one of the most profitable little devices ever put in a mill. Aside from its great convenience it will pay for itself in thirty days in dollars and cents. Dial, 12 inches diameter. A glance at the dial from any part of the mill tells the exact speed. Weight, 10 pounds.

Sent to any responsible party on thirty days' trial.

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BODINE ROOFING

(Made from Wood Fibre) is especially adapted to Paper Mills or Manufacturing Property. It has every quality required in a first-class roof, with many points of excellence to be found in no other form of Roofing. Sample, descriptive circular and price free to any address.

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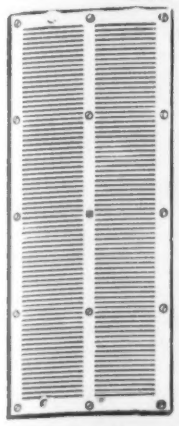

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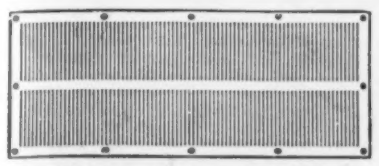

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Accurately, Promptly and Cheaply.

All **NEW PLATES** are made from our "Special Brass," which is the best quality obtainable.

OLD PLATES Repaired, Closed and Resawed to your entire satisfaction.

In ordering, give width of slot in thousandths of an inch, if convenient.

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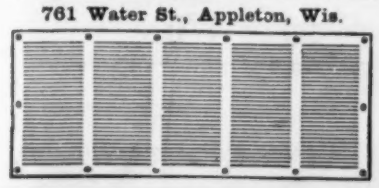

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Mounted on Rubber or Iron Wheels.

TRUCKS MADE TO ORDER.

Write for Prices.

RUBBER WHEELS, IRON WHEELS.

Casters of All Kinds.

CATALOGUES FREE.

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THE MORRISON & HERRON TESTING SYSTEM.

THE MORRISON & HERRON IMPROVED PAPER TESTING MACHINES.

Three Different Machines

—FOR—

Strength, Thickness and Weight.

A NEW PRINCIPLE APPLIED IN TESTING PAPER.

Thickness shown to the sixteen-thousandth part of an inch.

Used in the GOVERNMENT PRINTING OFFICE and the DEPARTMENTS at Washington.

Price, complete,	$150.00
Or Strength Indicator,	75.00
Thickness Gauge,	75.00
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CAUTION.

All persons are liable to prosecution who make, buy or use Paper Testers that confine and break paper within its edges, as my Patents cover that method.

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ANALYTICAL and CONSULTING CHEMISTS

By appointment to the Paper Makers' Association of Great Britain and Ireland.

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Analyses carefully made. Advice on Chemical subjects given. Special attention paid to all matters connected with the Manufacture of Paper.

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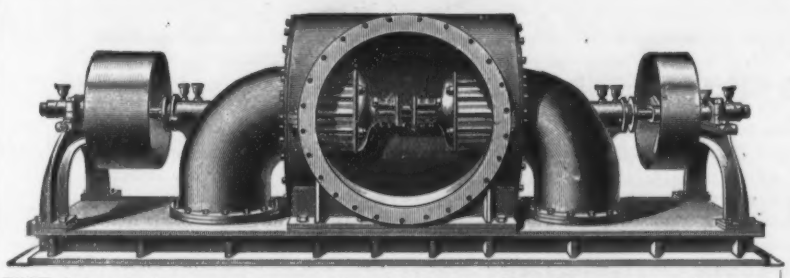
THE VICTOR TURBINE.

UPRIGHT or HORIZONTAL.

In use in a large number of best Paper and Pulp Mills in this and other Countries.



THE above engraving represents a pair of 12 inch **VICTOR TURBINES** arranged on a horizontal shaft, with Cast Iron Flume, Draft Tubes, End Bearings for Shaft, and Driving Pulleys complete, all mounted upon a substantial cast iron bed plate. The entire arrangement is very complete and strictly first class in every particular. We are now prepared to furnish Victor Turbines either single or in pairs on horizontal shafts and where the situation admits of their use we recommend them.

Possesses more than Double the Capacity of ordinary Water Wheels of same Diameter, and has produced the Best Results on Record, as shown in the following tests at Holyoke Testing Flume:

SIZE WHEEL.	HEAD IN FEET.	HORSE POWER.	PER CENT. OF USEFUL EFFECT
15 inch.	18.06	30.17	.8932
17½ inch.	17.96	36.25	.8930
20 inch.	18.21	49.00	.8532
25 inch.	17.90	68.62	.8584
30 inch.	11.65	52.54	.8676
35 inch.	17.29	133.19	.8497
40 inch.	16.49	148.93	.8253
48 inch.	15.51	179.29	.8202

Such results, together with its nicely working gate and simple, strong and durable construction, should favorably commend it to the attention of all discriminating purchasers.

THESE WHEELS ARE OF VERY SUPERIOR WORKMANSHIP AND FINISH.

THE VICTOR WHEEL is particularly adapted to setting on **HORIZONTAL SHAFT,** DISPENSING ENTIRELY WITH GEARS.

STATE YOUR REQUIREMENTS AND SEND FOR CATALOGUE TO THE

STILWELL & BIERCE MFG. CO., DAYTON, OHIO, U. S. A.

ANNANDALE *Screen Plate Co.,*

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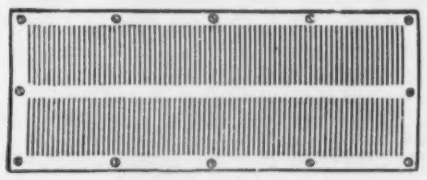

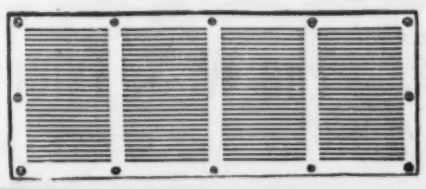

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MANUFACTURER OF

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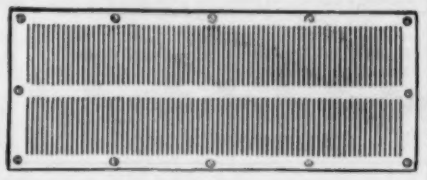

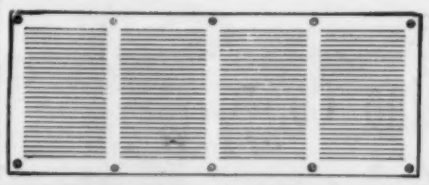

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AT PRICES THAT CANNOT BE SURPASSED.

BEST STOCK USED.

Write for Prices and Gauges.

All Work Warranted.

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MANUFACTURERS OF THE

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PAPER AND PULP MILL WORK.

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Brass and Copper Wire Cloth of Every Description.

BEST QUALITY, HEAVY GRADE, PURE SILK EDGES.

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For COVERING CYLINDERS and WASHERS.

Dandy Rolls and Cylinders Made and Repaired.

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Fourdrinier and Cylinder Paper Machines of extra heavy pattern. Stock Engines, Rag, Rope and Jute Cutters, Stuff and Fan Pumps, Chilled Calender Rolls, Gun Metal Rolls, **Rolls Reground by patent process.**

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Are running twenty-seven of the best paper machines in this country, transmitting from 20 to 40 horse power. Hundreds of small Cones, hanging and standing, in operation, driving all kinds of machinery. Send for Catalogue "G."

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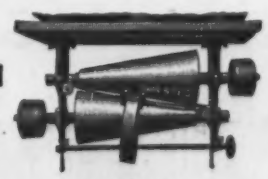

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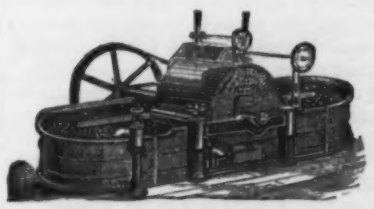

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An improvement in Washing Engines.

MACHINISTS AND MILLWRIGHTS.

Manufacturers of Beating and Washing Engines, Pumps, Rag Dusters, and Paper Mill Work in General.

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ALSO, MAKERS OF

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CAMERON STEAM PUMP

SIMPLE, RELIABLE, COMPACT, DURABLE.

NO OUTSIDE VALVE GEAR.

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THE A·S·CAMERON STEAM PUMP WORKS.

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UMPHERSTON'S PATENT ENGINE.

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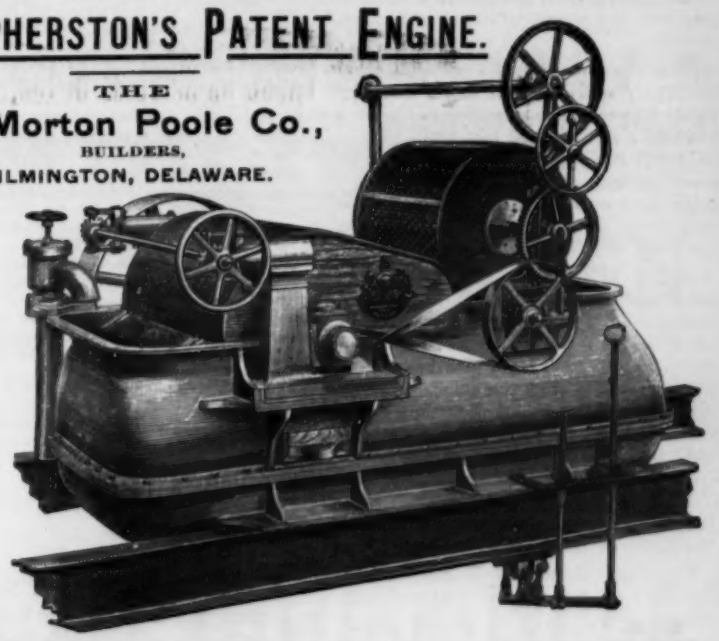
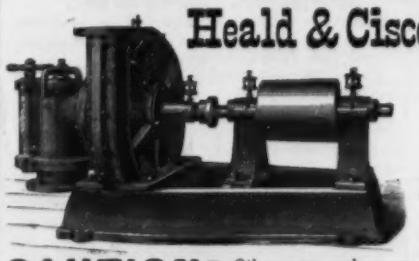


THE OLD RELIABLE Heald & Cisco Centrifugal Pump.



MORE OF THEM USED BY PAPER MAKERS THAN OF ALL OTHER KINDS COMBINED.

More than SIXTEEN Thousand in Use.

CAUTION!—Other pump makers are advertising their wares as the "Baldwinsville" Centrifugal Pump. This claim is fraudulent and intended to deceive. We are the only manufacturers of Centrifugal Pumps in Baldwinsville, and we warn all purchasers against parties falsely claiming otherwise.

MORRIS MACHINE WORKS (formerly Heald & Morris), Baldwinsville, N. Y., U. S. A.

HENRY WILDHAGEN,

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Will furnish plans, superintend construction, and put in operation

Paper, Sulphite Fibre and Pulp Mills.

Refers by permission to the following mills designed and constructed by him:

Alpena Sulphite Fibre Company, Alpena, Mich.	Capacity,	10 tons daily.
Detroit Fibre Company, Detroit, Mich.	"	15 "
Michigan Sulphite Fibre Company, Port Huron, Mich.	"	10 "
Dexter Sulphite Pulp and Paper Company, Dexter, N. Y.	"	20 "
The E. B. Eddy Manufacturing Co., Hull, P. Q., Canada.	"	10 "
The Manufacturing Investment Co., Appleton, Wis.	"	20 "

Makes a specialty of constructing Sulphite Fibre Mills, having had more than ten years' practical experience in this line.

*** APPLETON, WIS. ***

Manufacturing News.

EASTERN STATES.

The Winnipiseogee Paper Company, Franklin Falls, N. H., is laying a 14 inch pipe from the Winnipiseogee River to its lower mill. The water thus delivered will do away with the necessity of pumping water for mill uses.

The Fall Mountain Paper Company, Bellows Falls, Vt., which lately laid out a large amount of money in clearing White River for log floating purposes, finds itself still short of water in the branch running up through West Rochester, and will now build large reservoirs from which, at the proper season, the water may be let out in sufficient quantities to hurry the logs down stream. A vast amount of timber is to be cut in that locality the present season, and it looks as if the company had a big job on hand in converting White River into a practicable highway for logs.

C. H. Winchester, the well-known paper making-expert, is placing the machinery in a new mill at New Bedford, Mass.

The Jay Bridge (Me.) Paper Company will put in a 108 inch machine, which will increase the capacity of the mill to 20 tons per day.

The Howland Falls Pulp Company, Howland, Me., will add two new digesters to the equipment of its plant, increasing its output of fibre from 10 to 16 tons daily. The new digesters are to be lined by an entirely new process.

The Linden Paper Company, Holyoke, Mass., placed an order for twelve beating engines.

The Franklin Paper Company, Holyoke, Mass., will, it is reported, put in a cylinder machine and make duplex cardboard.

The brick work on the new mill of Crane & Co., Coltsville, Mass., is about completed, and it is expected that the mill will be ready to start up by September 1.

G. A. Robertson & Co., Hinsdale, N. H., have had their mill shut down for a week. A new steam engine has been put in operation.

MIDDLE STATES.

Frank Levy, paper box manufacturer, Amsterdam, N. Y., has put in a new engine and boiler and is adding other machinery.

Extensive improvements are being made by the Genesee Rag and Paper Company on its plant at Gibbonsville, N. Y. It is building a new dam 40 feet high, 166 feet wide and 900 feet long, which will store water enough to furnish the mill with power for a week exclusive of any supply of water from Silver Lake. It will also soon erect new buildings.

On July 4, just as the mill of the Jefferson Paper Company, Black River, N. Y., was shut down, the water carried away about 80 feet of the heavy stone wall of the flume. The loss is heavy and it is thought to have resulted from the same cause that wrecked the Remington Pulp Mill below Watertown over a year ago, neglecting to close the head gates before shutting down the mill.

The Glens Falls Paper Company has started up two machines in its new mill at Fort Edward, N. Y.

The High Falls Sulphite Pulp and Mining Company will build a paper mill and establish a sulphite fibre plant at High Falls, on Grass River, in the town of Canton, N. Y. It is stated that this company will utilize the pyrites which can be had in abundance near the location of its mill.

WESTERN STATES.

The Western Coated Paper and Card Company, Chicago, Ill., has filed a certificate of decrease of the number of its directors from seven to five.

The Centralia Pulp and Water Power Company, Centralia, Wis., has begun work on its second paper mill.

The new paper mill at Denver, Col., will be located in South Denver, and subscriptions to the capital stock of the company are in excess of the amount required.

The paper mills at Quincy, Ill., have shut down and will not start up again until August. New machinery will be put in.

At St. Charles, Ill., high water recently took out a part of the raceway wall and carried away a corner of the paper mill.

M. L. Proctor has a paper mill under construction at Constantine, Mich., and expects to start it up on tissue at an early day. He will also make waxed paper.

The Centralia Pulp and Water Power Company will build a large addition to its paper mill at Centralia, Wis. A 114 inch Fourdrinier will be put in. Three water wheels and three 1,000 pound engines have been ordered from the Dayton (Ohio) Globe Iron Works.

The Willamette Pulp and Paper Company, Oregon City, Ore., is running its mills to their full capacity on news paper. This company is not manufacturing very much manilla paper, only turning out sufficient to fill orders. The 102 inch machine lately put in has been started up and is in successful operation.

The repairs on the mill of the Kokomo Paper Company, Kokomo, Ind., which had been injured by fire, have been completed and the mill has started up.

CANADA.

It is stated that a pulp and paper mill is projected at Ottawa, parties from Watertown, N. Y., being interested.

The Nova Scotia Wood Pulp and Paper Company, Limited, Mill Village, N. S., has placed two "New England" wood pulp grinders in its mill, which are furnished by the New England Pulp Machine Company, Bennington, Vt.

The Disinfection of Paper Stock.

According to the almanac this is about the time to look out for disinfecting regulations, and sure enough the Government has been stirring this old subject up.

Some time ago, as noted in THE JOURNAL at the time, regulations were issued requiring that rags shipped from Marseilles should be accompanied by consular certificate that they had been properly disinfected before they could be admitted to any port of the United States.

Later there were a number of cases of smallpox in Ghent, which John B. Osborne, the American consul at that port, reported to this Government, his report being incorporated in the sanitary bulletin of the National Board of Health. In this report Consul Osborne said that the disease was contracted from foreign rags which were brought to Ghent. Thereupon an order was issued requiring disinfection certificates for all rags shipped from Ghent. These two orders, according to a letter received from Secretary Foster by an importer, are not intended as temporary arrangements but are to remain in force permanently.

A third order has now been issued, and after reciting the title of the law under which it is issued it reads as follows :

Information has been received that cholera prevails in the Caucasus, in Eastern European Russia, in Persia, in Calcutta and on the western littoral of the Red Sea; and in view of the threatened further spread of the disease, and because of the danger which attaches to rags, furs, wool, hides, &c., which may have been gathered in the infected districts, and to articles of personal wear therefrom, it is hereby ordered that no vessel having rags, furs, skins, hair, feathers, boxed or baled clothing or bedding, or any similar article liable to convey infection, hailing from any port in the districts aforesaid, and no vessel from any port carrying the above mentioned merchandise or immigrants from the present infected districts, or from districts that shall hereafter be officially declared infected, will be allowed entry to any port in the United States, unless provided with either a consular certificate or a certificate from a medical officer of the Marine Hospital Service or State or local quarantine officer of the United States, to the effect that the vessel, cargo, personal effects, &c., have been disinfected in accordance with the methods herewith prescribed :

A.—DISINFECTION OF VESSELS.

The disinfection of the vessel must be in accordance with the most efficient quarantine practice, and will be by one or more of the following methods :

a. Bichloride of mercury.
b. Sulphurous oxide.
c. Steam heat.

In addition to the above, thorough cleansing, flushing with sea water, &c.

B—DISINFECTION OF ARTICLES OF MERCHANDISE, PERSONAL EFFECTS, ETC.

For the disinfection of the articles of merchandise, personal effects, &c., mentioned in the circular, one or more of the following methods will be used, all articles to be unbaled :

1. Boiling in water not less than one hour.
2. Exposure to steam not less than one hour, the steam to be of a temperature not greater than 115° C. (239° Fahr.) and unmixed with air.

All bedding and clothing must be subjected to method No. 1 or No. 2.

3. Exposure not less than six hours to sulphurous acid gas, made by burning not less than 3 pounds of roll sulphur to each 1,000 cubic feet of space.
4. Exposure not less than six hours to an atmosphere containing 3 per cent. of sulphurous acid gas liberated from its liquid state (liquid sulphur dioxide).
5. Solution of carbolic acid of a 2 per cent. strength.

This method (No. 5) may be applied only to leather goods, such as trunks, satchels, boots, shoes ; to rubber goods, &c., the articles to be saturated with the solution.

An importer wrote to Secretary Foster seeking for information as to the matter. His letter was referred to Mr. Wyman, who inclosed a copy of this order and said :

"In addition to the information conveyed by the circular I have to inform you that rags, bagging, &c., if arriving from districts known to be infected will be subjected to long detention and very thorough treatment, and I may add that it is not improbable should cholera become widespread that it may be deemed necessary to prohibit the entry of any rags at all; but such prohibition has not yet been made."

A realty mortgage against John K. Jeffrey, bookseller and stationer, Cheyenne, Wy., has been foreclosed.

Personals.

H. A. Rademacher, of Lawrence, Mass., is in town this week.

A. Katzenstein, of E. Hatton & Co., sailed for Europe on the Elbe last Saturday.

James Scrimgeour, of Doty & Scrimgeour, left last Monday for a two weeks' vacation in Massachusetts.

Henry Atterbury, of Atterbury Brothers, who has been across the water, returned last Saturday on the Normannia.

Albert Bertuch, of F. Bertuch & Co., has given up his outside interests and will now devote his entire attention to the firm's wood fibre business, and can at all times be found at the firm's office in Temple Court.

Harry Bartow, of Perkins, Goodwin & Co., who has been laid up for some time because of the injury caused by a splinter in his left foot, is still confined to his room, but is progressing so well that he will shortly be able to be at business again.

Kate De Lano, daughter of the Hon. C. H. De Lano, president of the Ticonderoga Pulp and Paper Company, Ticonderoga, N. Y., was married on June 29, to Elmer W. Hyde. The wedding was a brilliant social affair and was largely attended. Cordial wishes for the future happiness and prosperity of the newly married couple are extended.

Accidents.

Mary Brooks, employed in the paper box factory of C. A. Euler & Son, Baltimore, Md., had her hand badly lacerated on July 5, by being caught in the machinery.

Dennis Bannon, an employee at the mill of the Joliet Paper Company, Joliet, Ill., had three fingers and a thumb of one hand severed on July 5 by feeding them into the rag cutter.

Frank Dwiggins, employed in hauling straw for the mill of the American Strawboard Company, Kokomo, Ind., met with an accident recently. He was riding one of his mules, when it threw him off and struck him with its front foot, breaking his left leg in two places below the knee.

A. McDonald, employed in the paper mill of the Puget Sound Pulp and Paper Company, Everett, Wash., was caught up by his jacket, which wound around a shaft making 120 revolutions a minute. He was whirled about the shaft several times before the machinery could be stopped. His shoulder was dislocated and leg broken, besides severe internal injuries.

John Sheehan, Holyoke, Mass., met with a serious accident on July 11, and had it not been for his presence of mind it would have ended fatally. He works in the Parsons Paper Company's Mill No. 2, and was engaged in cleaning some machinery while it was in motion. He had to clean a piece almost out of reach, and was on one foot, when he slipped and fell on a large belt. In a moment he would have been crushed into a jelly had he not grasped the shafting, which happened to be near, and with a great effort shut off the speed, in so doing extricating his foot. The action was so sudden that he fell with force on the floor and broke his leg just above the ankle.

Judge Putnam in the United States Circuit Court, at Boston, has been engaged in hearing the case of the American Box Machine Company *v.* G. A. Crossman and others, which is a suit to prevent the infringement of a patent. This is not the first time these persons have been in court. In a prior action a settlement was made under which the defendant was to operate the machine under a license. After using it for a while it was found that by the adoption of a trivial change in the machine work could be done which would do away with the use of two other machines, and the change was made. The plaintiff now claims that this is an infringement of its rights, while the defendant contends that the present machine is the same old machine, which he is entitled to use under his license.

HAMILTON FELTS

are used by many of the largest Paper and Pulp Mills in the country.

If you are a consumer of Felts it will be to your interest to try them.

Satisfaction Always Guaranteed.

☞ In ordering, mention kind of stock used, quality of paper made and speed of machine.

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HAMILTON, OHIO.

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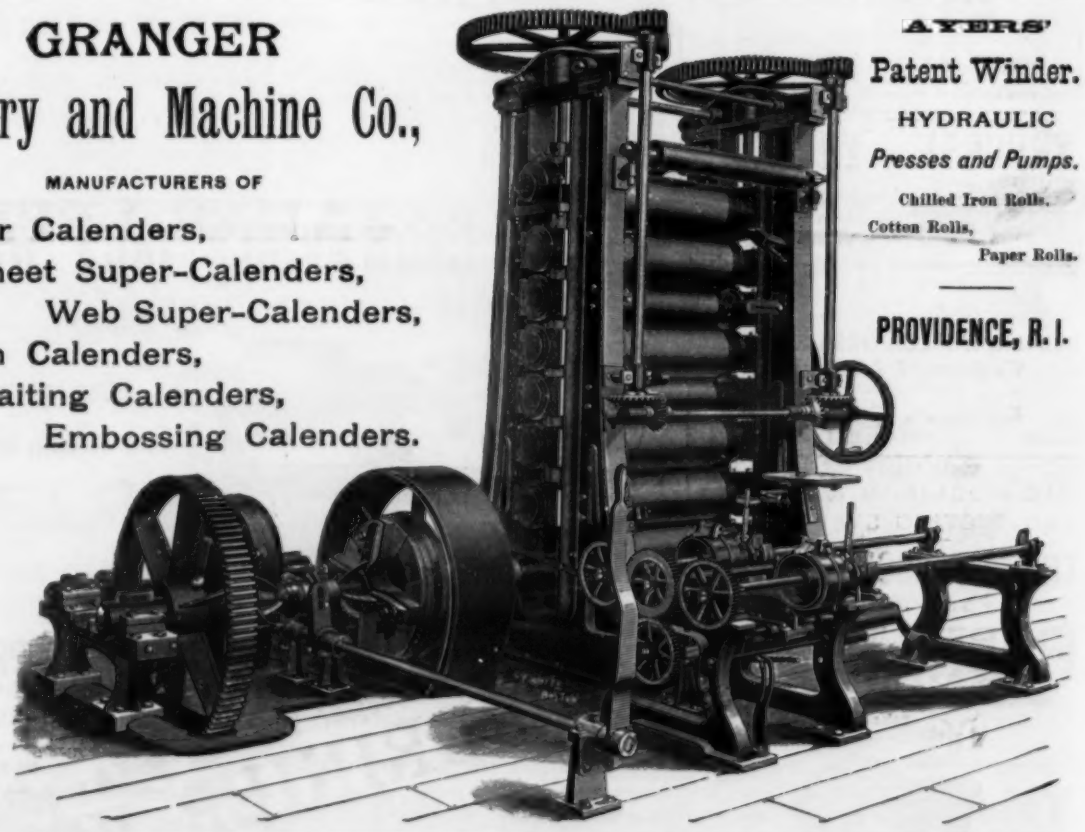

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Paper Rolls.

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BOTH
WET AND DRY PIPE SYSTEMS.

ESPECIALLY CONSTRUCTED to resist the effects of adhesive corrosion or sediment, both inside and outside the sprinkler.

ALL MOVING PARTS are joined together by the fusible solder and are lubricated by it when it melts.

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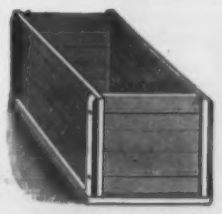

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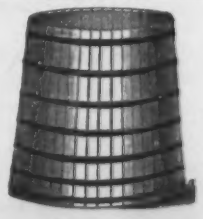

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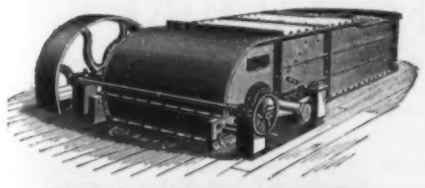

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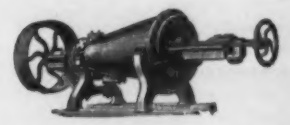

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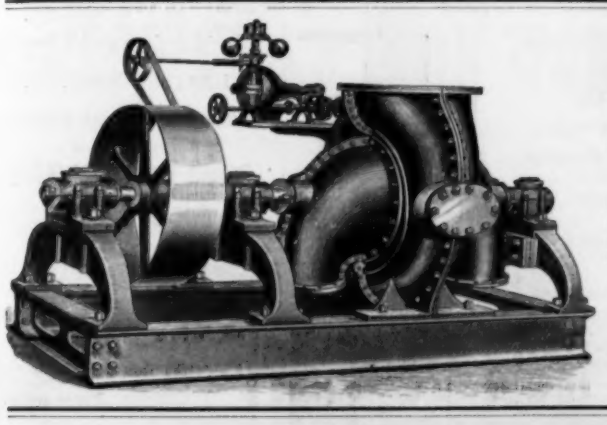

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SIX inches to NINETY-SIX inches diameter, under heads ranging from 2 to 350 feet, in many of the finest paper mills of this country, several companies using TWENTY to THIRTY-TWO Leffel Wheels each.

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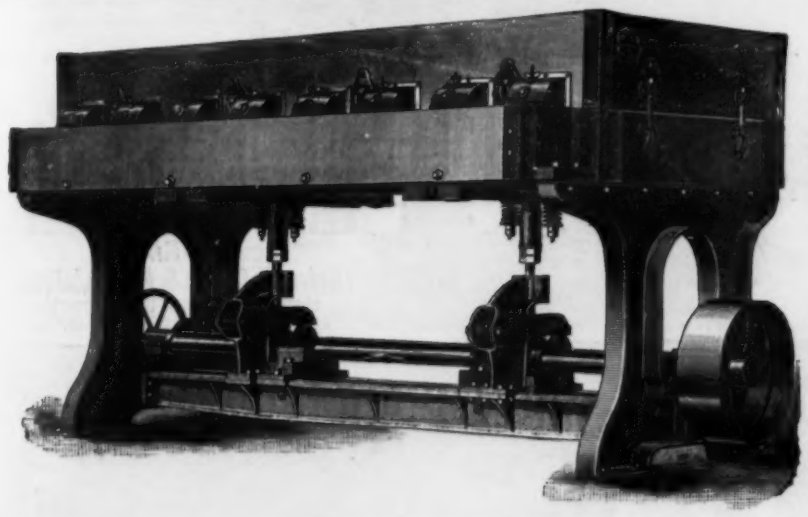

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COMPLETE, NOISELESS, NO STRINGS, LESS POWER.

Plates are sure to last longer, and but two-thirds the number being necessary. No waste of stock when washing up.

Occupies a small space; a simple, solid built flooring the only foundation necessary.

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Excellent work accomplished with eight (8) plates and 11-1000 screen plate.

In ordering the Screens no particulars are required.

IT HAS NO EQUAL AS TO SCREENING QUALITIES, CAPACITY AND SAVING OF STOCK.

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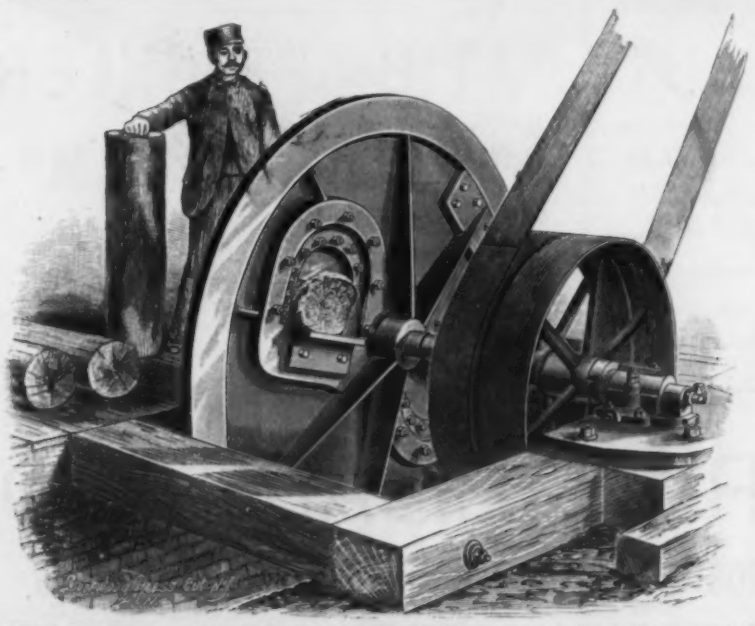
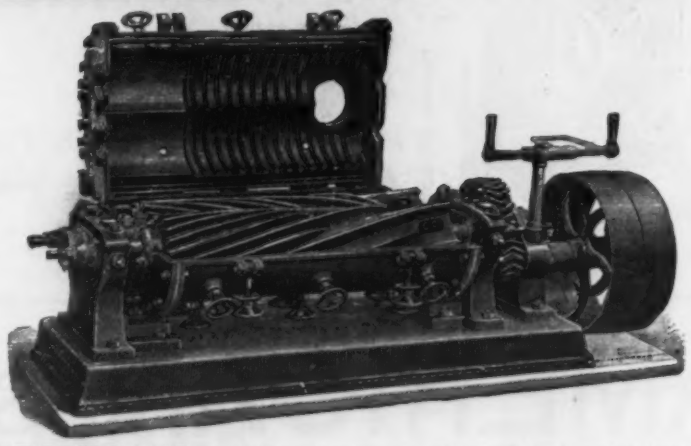


WIGGER PATENT CHIPPER can produce chips or disks up to 2 inches thick and 12 inches in diameter and requires only 8 to 10 horse power. Is in use in all the leading mills in Europe and the United States.

250 Testimonials proving the superiority of this Machine for different kinds of stock can be seen.



TRITURATOR replaces beaters on soft stock and assists beaters on hard stock in saving 50 per cent. beating time. Space required, 6 x 3 feet.

Daily capacity by using 7 to 8 horse power:

Straw	4.5 tons.
Ground wood	15 "
Waste paper	4 "
Rags	1.7 "
Partly cooked sulphite and knots	3.4 "

WE WILL FURNISH PLANS AND SUPERINTEND THE CONSTRUCTION AND STARTING OF PAPER MILLS, PULP AND SULPHITE MILLS; UNDERTAKE ANY ALTERATIONS, ENLARGEMENT OR REPAIRS OF MILLS NOW RUNNING. CORRESPONDENCE SOLICITED BY

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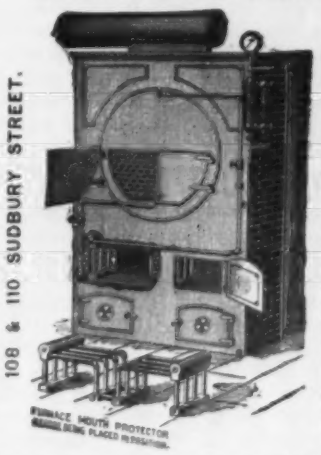

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THIS device prevents the constant burning out of cast iron cheeks and arc plates around furnace mouths, and avoids burning the front of boiler and tube sheet rivets, saves leakage and obviates shutting down for expensive repairs. It also utilizes a portion of the intense heat about furnace mouths for heating the feed water, and effects a saving in fuel of from 5 to 15 per cent. over old methods of attaching cast iron plates to furnace mouths. Send for particulars.

Vagaries of the Coal Trade.

It is an acknowledged fact in the anthracite coal trade that the Reading combine are actually in control, and that prices, subject, of course, to natural laws, are governed at will. For this reason there is a tacit acquiescence in the decisions of the combine by those within the charmed circle with reference to prices and output. At the same time it is evident, from expressions frequently heard, that there is more or less of suppressed dissatisfaction among the trade at large. For example, we have the advance in prices just announced by which the schedule on chestnut is put up 65 cents, and other sizes lessened in proportion—this, too, on July 1, a season always dull, when the market is supposed to be near the bottom, and therefore favorable to those who would provide for future wants. Not a few, even among influential operators, would be inclined to protest, and however warmly in sympathy would advise to "go slow."

President McLeod, of the Reading, successor of Mr. Gowen, reasons that the combine represents an enormous investment which must be made to return a fair interest on the capital; that coal can no longer be sold for less than cost, making due allowance for wear and tear, and that to bring about equilibrium and stability as between producers and consumers a steady advance in prices to a fairly remunerative point is inevitable. At the same time, to salve over matters, Mr. McLeod held out the expectation that eventually prices to consumers in Pennsylvania, including the large manufacturers, will be actually reduced. On this point he says that through the lease of the Lehigh Valley Railroad "the Reading will be able to operate both lines with greater economy than they could be operated separately, and through these economies will ultimately be able to reduce the tolls on coal to the industries on our lines as well as to more distant points."

He would have it believed that by the equalizing process going on it will no longer be possible to buy anthracite after it has been shipped to remote points in Maine or Chicago for less money than is paid in the State where it is mined. There have been three distinct advances in price during the past three months. The following shows the July circular prices for the past three years:

	1890.	1891.	1892
Grate	$3 65	$3.65	$3.90
Egg	3.75	3.85	4.20
Stove	4.00	4.05	4.50
Chestnut	3.65	3.75	4 40

Now a few of the wholesale operators and dealers object to anything like rash or hasty measures, calling attention to the fact that high prices are liable to stimulate competition to an injurious extent. Bituminous coal is constantly crowding in and is already felt much more than it was. Besides, there is the competition of oil and gas stoves that is almost immediately felt as the result of high prices for anthracite. In regard to the threatened encroachments of bituminous coal it is known that extensions of the Beach Creek Railroad already in progress through the famous Clearfield region, under the Vanderbilt interest, will in a few months materially augment the supplies of this fuel. Similar moves are making in Virginia and other directions.

For all this, the fact remains that the policy marked out by the Reading management points to higher prices in the future for the general consumer, despite the heavy interests still remaining outside. The control of the coal fields is now in strong hands, and is claimed to comprise 80 per cent. of the aggregate output. Mr. Gowen for a number of years endeavored to gain the point achieved by his successors, but failed. The consequence was that, to relieve pressing financial necessities arising from time to time, coal was slaughtered for what it would fetch, the whole market following in a scramble for buyers.

In the present situation it is understood all round that litigation is threatened in several quarters. But a certain degree of presumption is indulged on account of the probability that in any event a few years must elapse before an adverse decision is reached in the Supreme Court. There are the proceedings instituted by the Attorney General of Pennsylvania, also by the Attorney General of New Jersey. On the other hand, a committee of the New York Senate made a searching inquiry, which thus far has amounted to nothing beyond eliciting considerable information. Thus far little has been done to thwart the schemes of those who assume that they are intent only upon placing the coal trade on a remunerative and, therefore, permanent basis, in no way inimical to the public interests. For an interval, therefore, and perhaps for a term of years, the coal trade is likely to remain substantially in the control of the combine—a fact which cannot well be ignored, and consumers will govern themselves accordingly.—*Iron Age.*

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FROM SIX TO SIXTY-SIX INCHES DIAMETER.
Are in practical operation under heads from 4 to 100 feet head; are strong, durable and give high efficiency.

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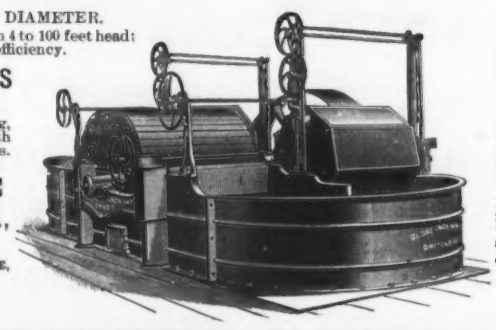

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Superior in construction to any made. Capacity, 4,000 to 6,500 pounds extra good pulp per day, dry weight, per each grinder. Hydraulic feeds, fine adjustments; strong and reliable in every way. Two and three pocket machines.

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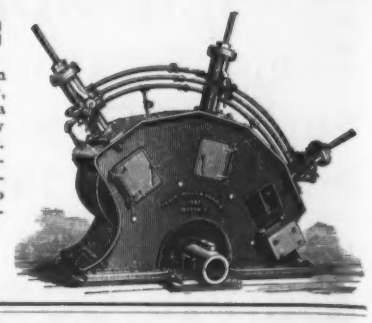

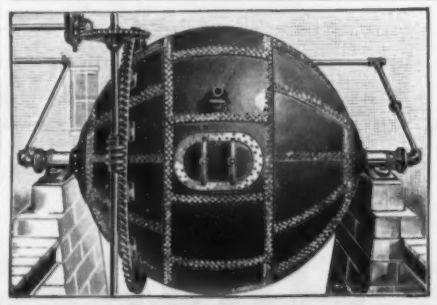

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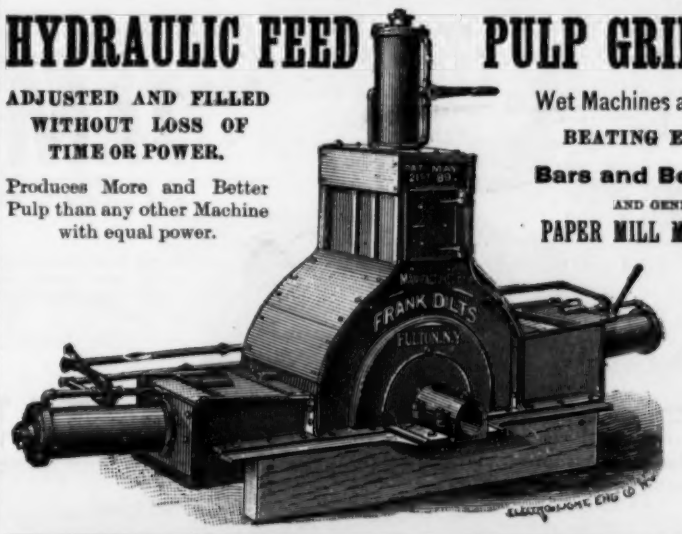

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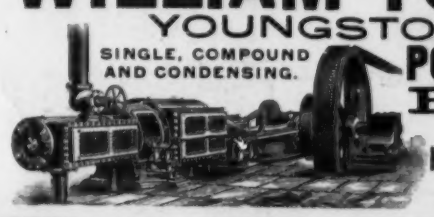

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The New Frambach and Badger Pulp Grinders,

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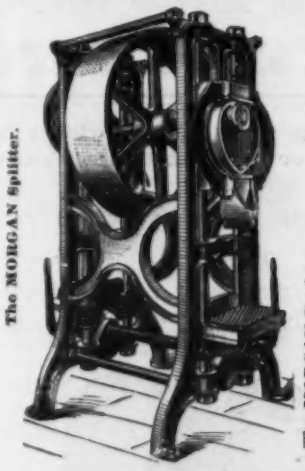
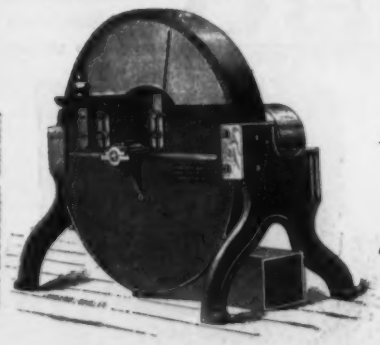


The MORGAN Barker.



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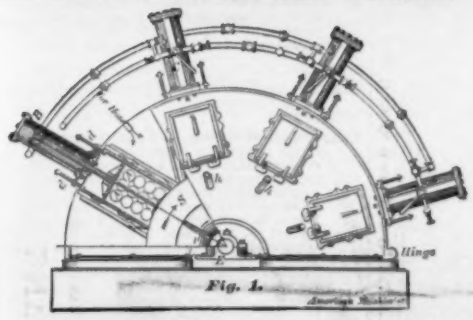

Fig. 1.

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TWO, THREE OR FOUR POCKET.

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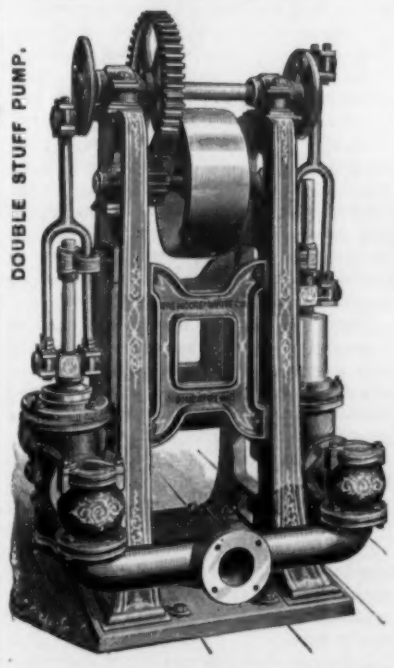

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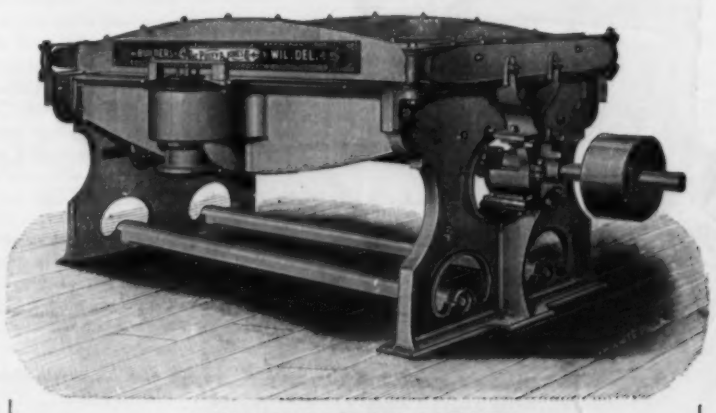

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Inspection.

The secret of superintendence is the secret of inspection, which secret is sound judgment. For if an inspector should condemn and reject every imperfect piece he would be no better inspector than he who should accept all things without any examination whatever. A machine could be designed to inspect for perfection, and an inspector who rejects nothing is a superfluity that burdens the pay roll and who adds no indorsement of any value to the quality of the output. Fault finding is not inspection. No manufactory of any kind, anywhere, produces work that is able to stand a dead open and shut inspection; and while such perfection is perfectly attainable at a greatly enhanced coast, it is found, in practical, paying, commercial machinery building, that buyers prefer that which is reasonably perfect at a reasonable cost to that which is actually correct at an extravagant price. The judgment to determine just what degree of workmanship can be taken and used, so that a standard of excellence may be accepted and maintained, which standard will be attractive to buyers at remunerative prices and demoralizing to competitors, is a rare endowment, and it is of more real value to a manufactory in the long run than any other factor whatever.

A brilliant salesman with a showy and reasonably priced line of goods can place a great many orders for them in his first trip out, but if the work is not good, so that in practical use it compares equally with or is better than similar lines of other makes, the hopes raised by this initial success will be dashed down by the complaints received and the impossibility to get further orders, and the quality of its workmanship will either of necessity be raised—in which case there is a hill to be climbed to get back again to the first position, which climbing will entail more work than originally was required to produce the first instalment of the goods—or the line will be a failure.

The prime requisite of a good inspector is that he must understand himself, in so far that he shall have confidence in his own judgment, and that that confidence shall be indorsed by the results of his past experience. This quality must be natural, and can neither be acquired nor imitated, but without it an inspector is of small value. For instance: In a factory on a certain time there were two inspectors, each with undefined powers, one of whom passed $3,000 worth of work which had a defect in appearance, but which was as good in workmanship as the standards required. The other inspector, however, demurred, appealed to the management, was sustained and the work was rejected. The first inspector, being confident that a mistake was being made, succeeded in saving the work from destruction, and had it stored away in a vacant room, and two years afterward, when the peculiar device to which this condemned work belonged was better understood, he had it brought out and the rejection reconsidered, and there was not one complaint from a customer on the point in question. In this connection an inspector will sometimes make mistakes and even errors of consequence; but he must be a man who, when he believes he is right, dares to act honestly and without stubbornness or conceit as far as his powers permit him.

The second requisite in an inspector is that he must thoroughly understand his work. He must be familiar not alone with the limits and qualities of the parts he overlooks, but their offices in the assembled whole device, and the operation of the machine in practice as well. If an inspector does not know the exact uses to which a piece is to be put or what is to be expected of it, he can have no data to assist his judgment in deviations from exactitude. The reader is an inspector, for every person overlooks some one's work, his own in particular. Suppose he is required to decide whether a lot of gears which are each one-hundredth of an inch too large or too small in diameter should pass, or whether another lot shall be made of the correct size to replace them. If he knows nothing of the environment of those gears when they shall be in place he cannot decide otherwise than reject them; for if he must call in the services of another person who does know he exposes his lack of knowledge, and shows that it takes two men to be one inspector. Many chief inspectors, however, in large concerns advocate cheap subordinates, and in getting such they often get those who are not naturally qualified for such work, and who have neither the knowledge to make them proficient and skillful nor the practice to have familiarized them with the objects to be accomplished by the work they inspect. In such cases the chief inspector is kept very busy in doing much necessary work deciding that the gears above mentioned are spoiled, because the distance between centres on the machine they belong to are exact, and the gears must run free and not shake; or that they are acceptable because they are applied to adjustable elements.

Now, care in selecting inspectors with the best natural qualifications, and a little time allowed them to become familiar with the uses to which the work they handle is to be put, would pay well if the chief should think of doing it. In fact, if a full working machine be accessible to each inspector it will be found of great assistance. Some years ago the chief inspector of a great factory, as a preliminary to more thorough reforms, made certain changes in the methods of inspecting, which resulted in a saving of more than one-half in the cost of that operation. Before the changes were made each department had a corps of men who inspected in detail the work it finished or did operations upon; these department inspectors were in the pay of the contractors in charge of the departments and accountable to them alone. Then the work accepted by the department inspectors was sent to the stock department, and there it was reinspected in detail by other men accountable to the factory management and working under the instruction of the chief inspector.

The change made was that the chief inspector assumed charge of the inspection in departments, taking a choice from both gangs of men in each case. One of the surprises of this change was that the departments were continually rejecting and destroying work that would have been acceptable had it been sent to the stock department, and thousands of dollars of good work was thus destroyed each year. So much for the evil effects of an antagonistic spirit between an aristocratic "company" department, which accepted a piece haughtily or rejected it insolently, explaining nothing, and a crowd of department inspectors who got every piece through that they thought would pass, and doctored a piece to improve it if it was slightly lame.

This change at once made order in the whole system. The inspectors were placed just where the operations were made, and in some cases a job was rearranged to group it closer together and about the inspector, so that the man who overlooked a finished part could occasionally inspect an operation to determine whether the tools were correctly doing their work in each operation.

There, of course, was some friction in the outset; for the workmen looked on the inspection of operations as an unnecessary espionage, until they found that they gained more by the prevention of bad work than they lost in time by the interference. They soon found that there was another element dividing the responsibility with them, and that if the legitimate inspector was satisfied with the operations as they were made he would probably be satisfied with the finished pieces. Gradually the true spirit of manufacture thus became prevalent—that the interests of the men who do the work are identical with the concern that employs them to do it. The great company, it was found, did not want to reject work any more than the humble workman who formed it. The experiences of some men made this great truth a hard one to master, but after a time it was found to be a fact, and then all opposition ceased.

It was an edifying sight to see a workman and an inspector together getting a machine in tune, so that it produced a satisfactory operation, both with identical interests and to get as great results as possible with the least effort on the whole; for if the inspector got that operation satisfactory he would have confidence and less labor in the inspection of that much of the finished piece, and the workman, if he was sure the inspector was satisfied, would progress in confidence and do more good work than he would if he should be in doubt.

Every day that this system was tried (it is yet in force) new benefits were found and new savings. The room occupied in the stock department by the inspectors was available for goods. It took one set of gauges less, and consequently fewer gauge makers. It saved in porterage and all other kinds of transportation. It produced harmony between the contractors and the company, for the subject matter of all disagreement was removed. It lessened the pay roll, for, while the inspectors were under the chief inspector's instructions, retention and selection, they were paid by the contractors.

It may be that this method of inspection may save in other factories.—*Albert D. Pentz, in American Machinist.*

Placing Globe Valves.

Considerable has been written of late concerning the placing of globe valves, and there appears to be a majority in favor of placing the bottom of the valve to the pressure.

Many men, however, give this question no thought, and when a job of this kind is on hand whichever way they happen to get hold of the valve that is the way it will go on.

Convenience should figure largely in the proper position of a valve. It is not convenient to have the water of condensation continually dropping from the stem of a valve. Neither is it convenient to place the bottom of a globe valve to the pressure when it is better to place the top to the pressure.

For instance, a valve is to be placed in a vertical steam pipe, the pressure from the upper end. Then the bottom of the valve should go to the pressure. On the other hand, if the top is put to the pressure, water will be continually leaking from the stem when the valve is closed.

If a valve is to be placed in a horizontal steam pipe, and it is convenient to point the stem slightly upward, the top of the valve should go to the pressure, for the reasons that the valve will seat much better, and not be near so liable to leak steam; and it doesn't require as much strain on the stem threads to open a valve against the pressure as is required to close it against the pressure and seat it firm enough to prevent the valve from leaking.

Again, should it be necessary to point the stem downward, it will also be convenient to place the bottom of the valve to the pressure, otherwise condensation would be leaking from the stem while the valve is closed.

I invariably place the top of mud valves to the pressure, for the reason that they seat easier and better and are far less liable to leak. A leaky mud valve is an abomination. It is far better to drain the boiler through the hand hole than to have the mud valve blow open with fire under the boiler.

The bottom of water feed valves should be placed to the pressure.

When two or more boilers are in use in one battery, and connected only at the steam pipes, each boiler must necessarily have its own feed valve, and they are necessarily worked considerably in regulating the feed water, and their proper place is in front, near the water gauge. About four years is the average life of the stem threads of such a valve. Placing the bottom of these valves to the pressure, or in other words toward the pump, they will be held open, as they should be. The stop valve between the check valve and the boiler can be used to regulate the feed until such a time that the feed valve can be fixed or replaced.

Stop valves in steam pipes near the boilers should be placed with the bottom of the valves to the boilers. In case of a single boiler the valve can be used in cold weather, or when anything is wrong with the throttle valve.

In case of two or more boilers, when necessary to take one out of service, the pressure from the other boilers comes upon the top of the closed valve, holding it to its seat, thus preventing any danger from that source to anyone working inside the boiler. The stems of these valves should be placed in—or a little upward—from a horizontal position, so that no pocket is formed to hold water while the valve is closed.

I saw in the *Locomotive* for last month an engraving showing a system of connecting boilers set in battery to a steam main. Angle valves are shown at the upper end of the riser, and the engraving shows the stems of the valves in a horizontal position, bringing the pressure on the bottom of a closed valve. While the valve wheel is in a convenient position, at the same time it is not in a proper position for a man working inside of one of the boilers with pressure on the rest of the battery; it is nothing more than a death trap.

Make the valves convenient by turning the stems upward, and the top to the pressure, and the wheels arrangement somewhat inconvenient, if essential for safety.—*S. A. Smith in American Machinist.*

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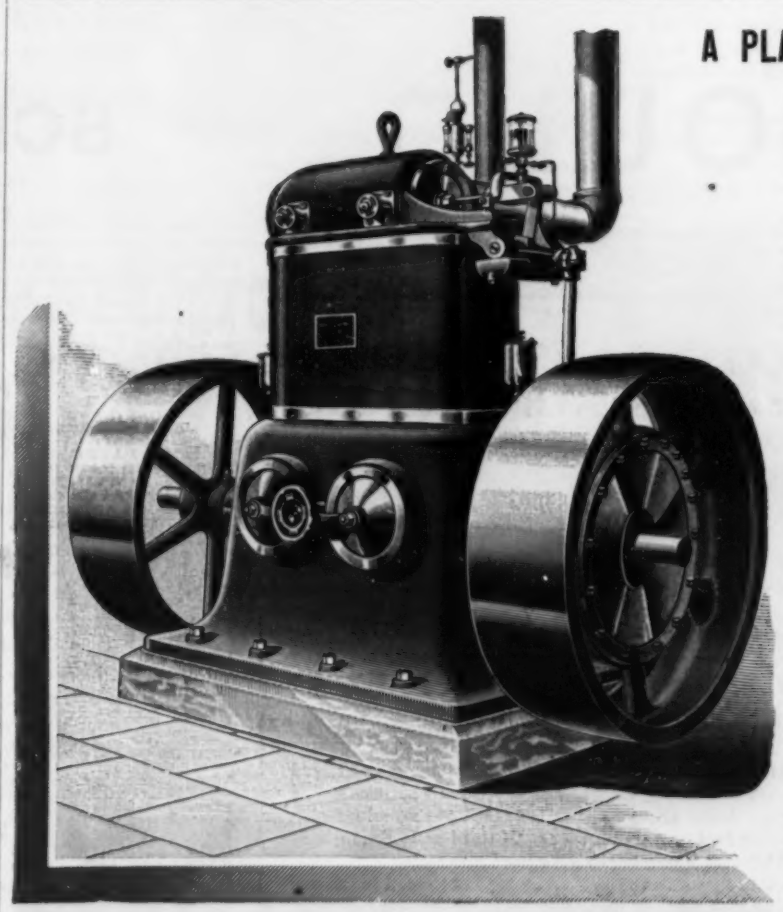

A PLAIN STATEMENT OF FACT.

THE Compound Engine, when non-condensing, so far from possessing an economy superior to the Simple Engine, has been decisively proven, "much to the disgust of the stockholder," to show normal economy only at or about its rated power, and to fall off in economy faster than a Simple Engine as the load falls off; moreover, very much faster under the extreme light loads that are common at times in many industries. This point is at last reluctantly admitted by the more candid builders of such engines, most of whom now advise against compounding for variable loads. The reason is their inability to divide the load and range of temperature proportionately and automatically between the cylinders at all points of cut-off. Hence the low pressure cylinder expands its steam below atmosphere under a moderately early cut-off, thus converting itself into an Air Pump and becoming a load upon the high-pressure cylinder instead of a co-laborer with it. This point was distinctly foreseen by the designers of the Westinghouse Compound Engine and an entirely new principle was worked out, making expansion below atmosphere impossible under any load, however light.

For the first time in the history of Steam Engineering, either Simple or Compound, is built an engine which maintains essentially uniform economy, irrespective of load, and hence, for the first time the Compound Non-Condensing Engine has been made practicable. The results, demonstrated by test, show that where an ordinary Compound will range from 25 lbs. to 70 lbs. water per H. P. per hour from full to quarter load, the Westinghouse Compound, between the same limits, will range from 23 lbs. to 29 lbs. We have not deceived ourselves in this matter and propose that the facts shall be understood. To those interested in the nicer points involved we will be pleased to send a reprint of the paper read by Mr. F. M. Rites on this subject at the late meeting of the American Society of Mechanical Engineers at San Francisco.

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The Steam Engine Indispensable.

In answer to a reporter's inquiry, "Must the engine go?" Edison said:

Why, certainly, that is what it is bought for. It ought to go the regulation number of hours per day and the regulation number of days per week, for a long time.

But if you mean, "Will the steam engine be superseded by electricity?" I would answer that it is my opinion that it will not be in my day, nor yet in yours. You may notice that nearly every one of these electric motors which you see around in the printing offices and grocers' windows and such places are not attached to the lightning rod nor to any other such source of power, but receive their current from a dynamo, to which there is usually attached a very vigorous high grade steam engine.

There are cases where this dynamo which feeds the motors is driven by water power, but there are more coal piles than waterfalls concerned in such work; and the fifty small motors that are driven by any steam engine do not even displace fifty small steam engines. A few of them displace steam engines, some of them hot air engines and other such motors; but many of them, perhaps it will be safe to say most of them, supersede hand power or foot power, or take the place of no power at all. They are developing the idea of doing things by machinery that were once done by hand. No one who has ever started a sewing machine by pressing a button or swiveling a switch will ever run one by foot power if she or he can get out of it.

There is more horse power used in small manufacturing since electric motors came in use than there was before. I will not say there is so much more coal consumed, because the electric motor idea, if properly carried out, should enable the consumer of small powers to get part of the benefit of the use of large and economical high grade engines. There may be a time when Niagara and other water powers are set to work turning turbine wheels and driving dynamos, to grind out power to be carried long distances over the country through copper wires or bars; but as against that, there is the opposition at once created to the same principle being applied to producing power in immense quantities at the coal mines and the gas wells, and leading the current in the same way from where it is produced to where it is needed.

No, I don't think that the steam engine must go (out of use) just yet.—*Boston Journal of Commerce.*

New Process for Preserving Timber.

A new process for preserving timber is mentioned in *Engineering*, which promises to be of great value for various purposes. The process consists merely in saturating the timber with naphthaline, which is substantially a hard wax. The naphthaline is kept melted in a tank at a temperature of 180° to 200° Fahr., by means of steam pipes in the tank, and the timber to be preserved is simply soaked in it for a period varying from two to twelve hours, according to the size of the piece.

It is said that green timber can be treated with success, the melted naphthaline making its way through the cells, decomposing the albumenized compounds, and displacing sap and water, leaving the timber, on cooling, saturated with a waxy, antiseptic solid. If such a substitution of solid naphthaline for air and sap in the pores really takes place, wood so treated must have singular advantages for finishing work. Not only would the pores need no filling, but mere rubbing with a cloth would give a polish, and, apparently, the wood might be exposed to dampness indefinitely, without fear of swelling or subsequent shrinking.

Oil Purge of Boilers.

The use of oil as a means of purging boilers creates a slag that adheres to the flues and shell and impairs the heating qualities. The precipitate from water often accumulates in great thickness at the point of injection, thus preventing water contact with the shell. The result of this, says an authority, is that the metal becomes heated, frequently to a white heat, and by the consequent expansion joints are loosened or destroyed, or the shell wrinkled and cracked. The longitudinal expansion of flues pushes boiler heads loose at their circumference, or opens a breach about the flue ends. The drift pin is frequently made use of, very greatly to the damage of the metal for the purpose of forcing rivets in cases of irregular punching. Overloaded safety valves, too, often cause disaster and loss of life. Steam gauges fail to register on account of clogged pipes. Boilers are frequently weakened by their shells becoming impregnated with sulphur contained in soft coal used for fuel; in this case the metal cracks in minute fissures, resembling in their arrangement the veins of a leaf.

A Few Simple Principles.

Whoever makes two ears of corn or two blades of grass to grow upon a spot of ground where only one grew before is a benefactor of mankind. So says Swift with a true and a wise philosophy.

Whoever provides employment for his fellows, by means of which they can get their bread, is a benefactor of the race.

Whoever organizes and develops a great industry out of which thousands can make their living has served his day and generation. He is a public benefactor.

The great mass of mankind are dependent for their subsistence on industries organized by such benefactors. This relation between the employer and the employed, the master and the workman, capital and labor, has existed at all periods of human history. Without it the race could not survive. It would die out by starvation.

Originally the relation was that of captor to captive, or master to slave. Superior power forced the workman to labor. The growth of civilization has emancipated the laborer from that bondage. He is no longer the slave of his employer. He is a free man, with the right to sell his labor and charge his own price for it, to choose his own employer and the sort of work he will do. He can work or not, as he thinks best, or as his necessities require. The greatest victory in the long battle for human rights has been this triumph of individual liberty. Except in a few countries of the earth and among tribes still in savagery, all mankind are now thus free.

Yet by the very law of nature they are still bound and forced to labor. That law is irresistible. In the sweat of their brow they must earn their bread or they will starve. Manna does not drop down from heaven for their sustenance. They are not disembodied spirits living on ether, but corporeal beings who must be fed; and all of them must engage in the business of getting this necessary food. No one is exempt. Mr. Astor, Mr. Vanderbilt, Mr. Rockefeller, Mr. Carnegie would starve if they had nothing except gold and silver, greenbacks and bonds to live upon, for there is no nutriment in them. They must expend their money for the general benefit or it is of no use to them. They must invest it for the use of other people. Unless it is so used it is of no good to them. They are forced for self preservation to put it to such employment. They must buy food, and by the buying enable others to get food. If they lock up their money in vaults and keep it idle, it is worthless to them. They must turn it over so that it will serve the public. They must build houses, establish industries and assist undertakings necessary for the general benefit. The money must serve the interests of the whole, if it is to be made to serve their own individual interests.

Hence, by the law of nature, a man is still a bondsman, whether rich or poor. He must lend a hand to necessary human industry or else starve. Capital is no more free from this obligation than labor.

Mr. Andrew Carnegie started out in life as a poor Scotch boy. Not one of his workmen has had to work any harder than he worked. In his time he has employed many thousands of these workmen. He has given labor by which they earned the bread they are compelled to have by the law of nature. The capital he has gathered has been a fund accumulated by the help of their labor, doubtless, but it has been labor made possible by his ability to organize the industry for them, and by labor exerted because he had the capital for its employment. Workmen have not gone to his mills because he forced them there. They have gone under the compulsion of the law of nature. They wanted the work he gave them, which they could not get along without, and which they could not have had unless Mr. Carnegie's capital, or the capital of somebody else, had furnished it for them. They could not have built up the business of themselves; and if it had not been built up by Mr. Carnegie for them they would have had to go elsewhere to find other capital as an employer.

If a man has labor to sell he must find some one with money to buy it, or it is of no more use to him than unused capital is to Mr. Carnegie. If the man does not like the price offered he can reject it. If the buyer does not like the price asked he has the same liberty. Neither is obliged to accept the bargain, though both are under the same law which forces men to take what they can get. If the laborer does not want the work longer than he contracted to give it he can throw it up, and the employer has the same right to dispense with the laborer. The workman can choose his employer, and the employer can choose his workman. No law can take away that right from either. The workman can refuse to work and the employer to hire. Such is liberty.

These are very simple, self evident facts and principles, but when a senator gets up in the Senate to oppose them, and when vile and vicious journals strive to cheat and delude the people by denying them, it is worth while to repeat them for the general benefit. The laborers who set out to destroy this universal and immutable law will dash their heads against a rock. They are madmen. They are tearing up the blades of grass and the ears of corn which were planted and were growing for their benefit. —*New York Sun.*

Future of Electricity.

Since in obtaining power from fuel by means of steam engines upward of 90 per cent. is wasted in unused heat, while the power obtainable for use represents scarcely more than 10 per cent. of the real value of the fuel, under the very best conditions the question arises whether there may not be discoverable a plan whereby a much larger percentage of the real value of the fuel may be turned to account as electricity, and through the latter as heat, light or power.

This question has at present no answer. The subject has been alive in the minds of our most able engineers and inventors for years, and some have striven hard to find a solution to the problem. Records of scientific discovery have been earnestly ransacked to find some clue, or, as it were, a guiding post to point the way for the uncertain explorer. It now appears that we may be compelled to wait some new discovery, some new adaptation or some new generalization before the way to the much desired solution may be found.

The effect on the general industrial and economic development in electricity which would follow the discovery of some not too complex means for realizing an economy of even 40 or 50 per cent. of the energy value of fuel is indeed almost incalculable. Then truly would electricity become the almost universal agent in the production as well as the transmission of power. The steam engine would go out of use almost entirely. We should burn our coal not under steam boilers; it would be consumed in electric generators. Our steamships would have their machinery replaced by such generators, and their propellers would be turned by gigantic electric motors connected with the generators. The speed would be increased so as to still further shorten the time of an ocean voyage. The uses of electricity as a heating agent would be vastly extended, and it goes without saying that our lighting would be accomplished at much less cost.—*Elihu Thomson in New England Magazine.*

Preserving Stone.

The following formulas for metallic cements are given in *La Revue Pratique des Travaux Publics:* Oxide of zinc dissolved in a solution of the chloride has for a long time been used as a paint, and it serves as a base for the following cements: (1) Oxide of zinc, 20 kilogs.; pulverized Lorraine cement stone, 20 kilogs.; sandstone, 10 kilogs. This cement must be tempered by a liquid composed of hydrochloric acid, 22° Beaumé, 10 litres; water, 5 litres; zinc, 3 kilogs; ammonium chloride, 0.5 kilog (2) A cheaper cement can be obtained by mixing oxide of zinc, 10 kilogs.; pulverized Lorraine cement stone, 20 kilogs.; sandstone, 5 kilogs., and yellow ochre, 0.4 kilog. This cement is tempered with the solution just given, diluted with 5 litres of water.

For soft stone a cement is made of: Oxide of zinc, 10 kilogs.; Lorraine cement stone, 30 kilogs.; sandstone, 10 kilogs., and yellow ochre, 0.3 kilog.; or the following formula may be used: Zinc white, 5 kilogs.; plaster, 10 kilogs.; Lorraine cement stone, 10 kilogs., and yellow ochre, 0.5 kilog. If an extremely strong cement is desired it can be prepared of oxide of zinc, 10 kilogs.; pulverized quartz, 15 kilogs. For the three last mentioned cements the liquid given above is used, only 10 litres of water are added instead of 5 litres.

These cements can be applied with a brush as a paint. Colors give good results, the coating adheres perfectly to the stone and gives it the appearance of a newly cut surface, and at the same time forms a protecting cover against the inclemency of the weather. The stone should be well cleaned before applying the paint, and if necessary two or more coats can be given.

A new and highly sensitive reaction paper is obtained by saturating white neutral filter paper in tincture of curcuma 1:7. After drying it is immersed in a bath containing 100 parts water and 2 caustic potash, and then washed rapidly in pure water in a flat porcelain basin. After drying the sheets are cut into strips, and these are placed between sheets of tin, which is essential, as air soon turns the paper, while it keeps indefinitely in contact with tin. This paper is extremely sensitive, as it colors in the presence of 1 part of HCl in 150,000 and indicates CO_2 dissolved in water. The best way of using this paper is to touch it with a glass rod dipped in the solution and dried.

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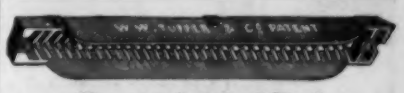

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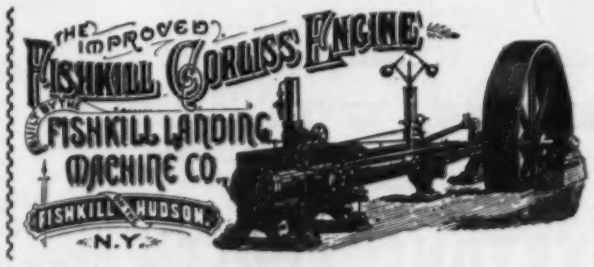

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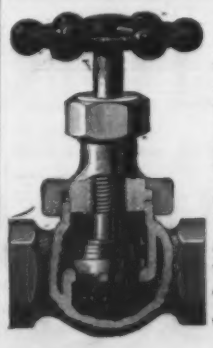
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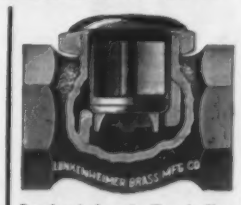

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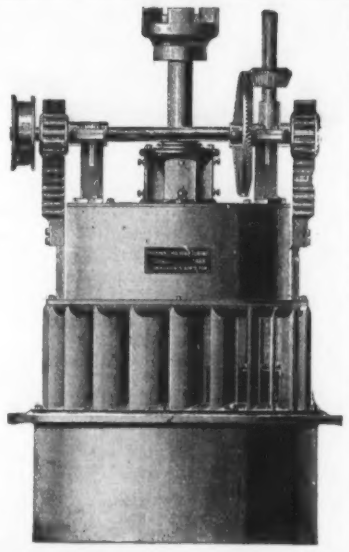

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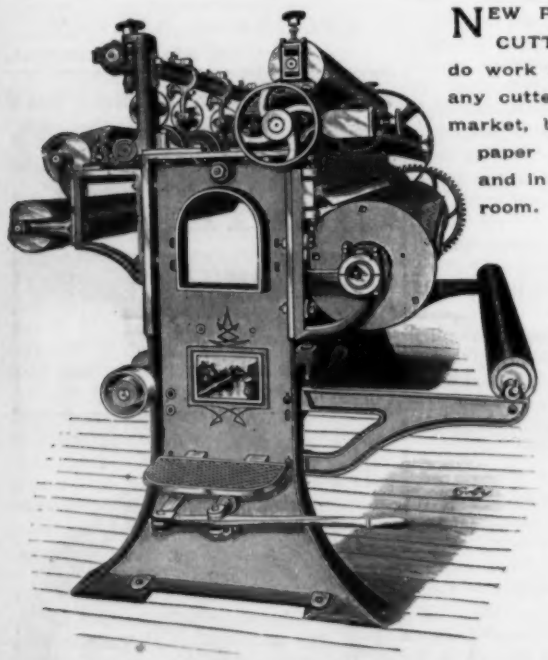

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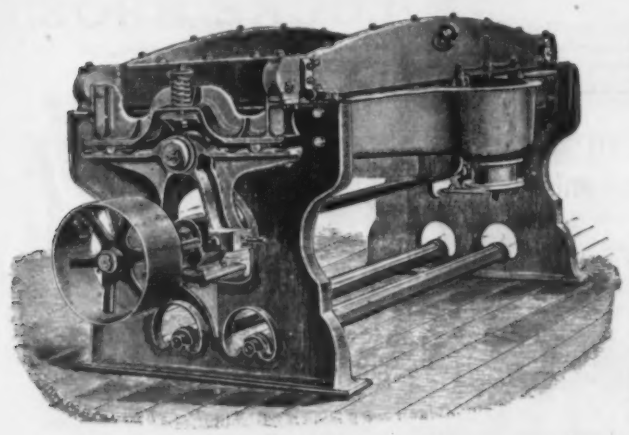

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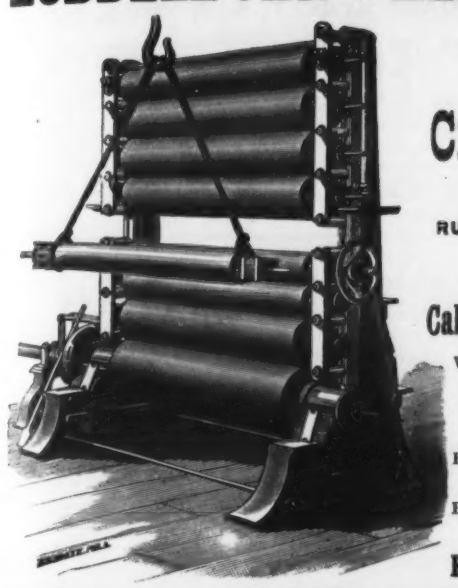

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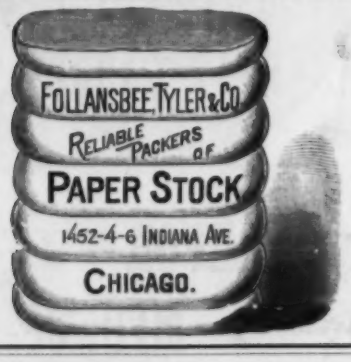

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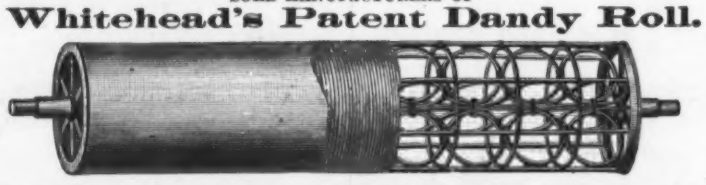
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